JUNE, 1960 • 35¢

AMERICAN

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SPECIAL IN THIS ISSUE

- Filming "The Fugitive Kind"
- Optical Effects For TV Films
- Tracking Music For TV Films
- Single-system Film Production

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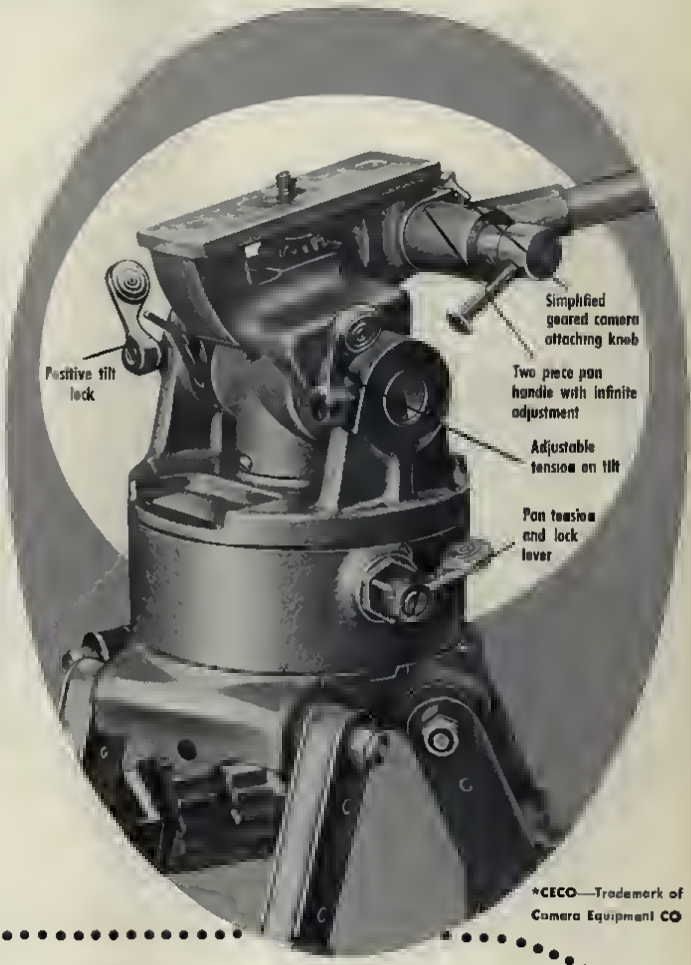
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ON THE COVER

TO MAKE UNUSUAL follow-shot of Anna Magnani running downstairs in climactic scene for "The Fugitive Kind," operative cameraman Saul Midwal was strapped to trapeze-like rig which enabled him to fall forward over edge of a balcony (with complete safety) in a 180-degree arc. Aiding in the preparations are (l. to r.) Harold Posner, assistant cameraman, head grip Eddie Knott; and grip Jimmy Gatland. Additional pictures and story of Midwal's execution of the shot appears in this issue.—Photo by Muky.

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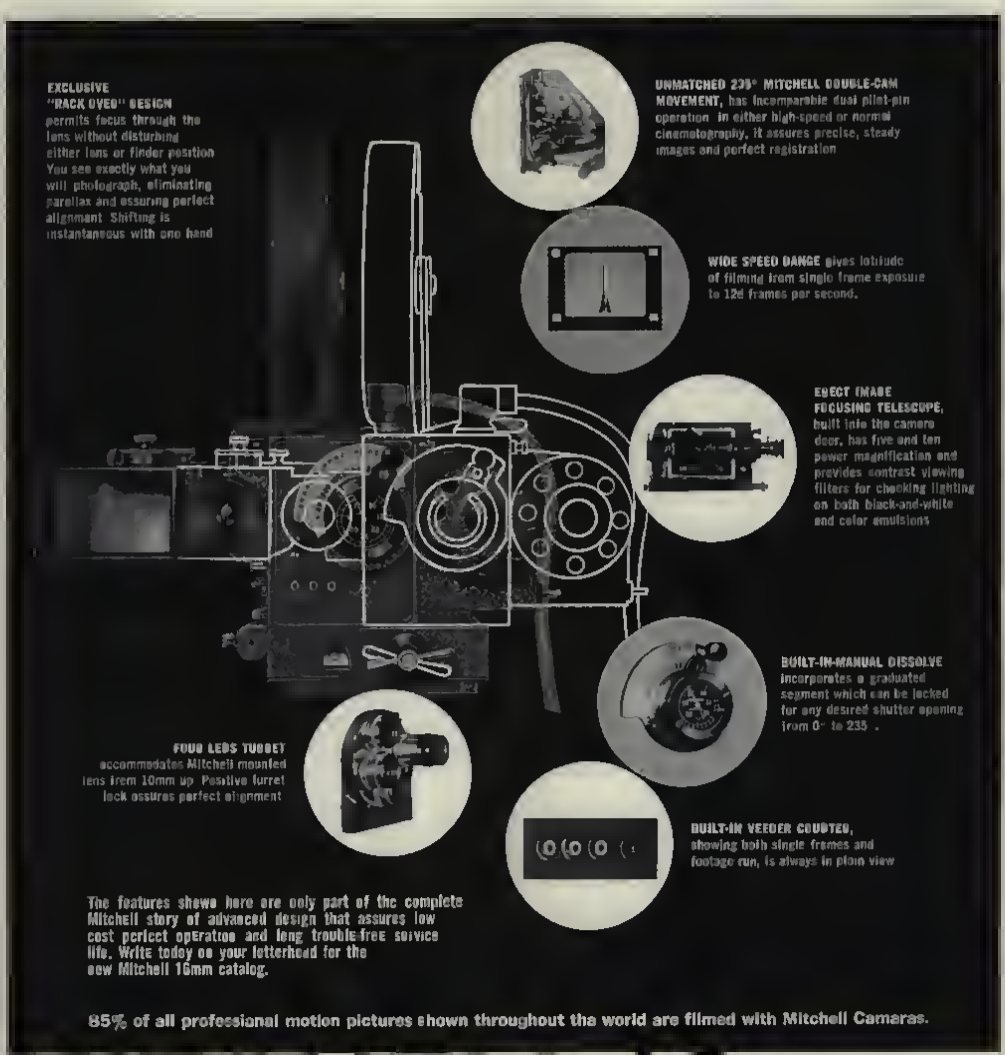
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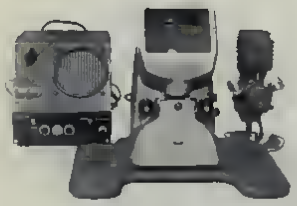

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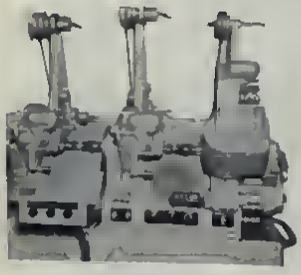

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INDUSTRY NEWS

News briefs of industry activities, products and progress

96% of TV Network Shows Now On Film or Tape

Reflecting healthy outlook for future of television film production is observation of one advertising executive attending recent convention of National Association of Broadcasters in Chicago He noted that close to 90% of TV network programs were currently on film, while another 6% or more are available on tape.

★

NBC Increasing Color TV Programs 27 Percent

Television programming in color this year will be stepped up to 27% over 1959 by NBC-TV, according to network's Paul Klempner, who made announcement at RCA's national dealer meeting in Las Vegas last month NBC-TV leads all other networks in this field at present. CBS sharply cut its color telecasts last year, and so far ABC's TV beamings are strictly black-and-white When color sets in active use pass the one-million mark, it is generally believed that the latter two networks will activate color programming on a substantial scale.

The slow but certain increase in color programming is prompting more and more video film producers to consider if not actually switch to shooting their film series on color film.

★

Eastman Kodak's New B&W And Color Films Shown ASC

A high-speed black-and-white negative film and two high-speed color films and a reversal print film for motion picture use were unveiled in a demonstration and talk by Eastman Kodak representatives at the ASC's April dinner-meeting in Hollywood Describing the films along with motion picture and slide presentations were Dr. Norwood Simmons, Vaughn Shaner, and Walter L. Farley, Jr. Papers on all the films were subsequently presented by Eastman Kodak representatives from Rochester at the Convention of Society of Motion Picture and Television Engineers in Los Angeles, last month

The new black-and-white negative film, known as Eastman Double-X Panchromatic Negative (Type 5222 in 35mm, Type 7222 in 16mm) has been designed to give more than twice the speed of Eastman Plus-X Panchromatic Negative film, without any significant increase in grain.

The film reportedly will broaden the scope of available light photography, permitting shooting in natural settings Also, it will enable the larger sets required for wide-screen to be photographed with less lighting equipment

The Eastman Ektachrome ER Daylight and Type B films are high-speed color reversal camera films, designed for 35mm and 16mm motion picture photography.

★

Interesting Revelations At SMPTE's Convention In Los Angeles

Sturdier equipment, more precise and accurate techniques, and sharper methods and materials for recording and reproducing the visual and aural requirements of entertainment, industry and of science were reported, exhibited or demonstrated during the four-day convention of Society of Motion Picture and Television Engineers in Los Angeles, last month

Of special interest to cinematographers and others engaged in production of motion pictures were papers delivered on the following subjects:

Fiber Optics—New ways of combining optics and electronics through use of tiny glass threads known as optical fibers.

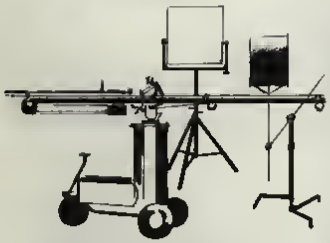
Development of the Zoom Lens—How various types operate, and their good and bad points

Motion Picture Camera Lenses—How wide-screen movies have necessitated a re-evaluation of optical characteristics and performance requirements of motion picture camera lenses.

Continued on Page 334

...you'll find Charles Ross

LIGHTS



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INDUSTRY NEWS

Continued From Page 332

Other subjects presented that were related directly or indirectly to motion pictures were "Film Communications In The Space Age," "Eyes For The Astronaut," "A Cartridge-loaded, Variable Speed 16mm Projector," "A New 8mm Sound Projector," "Control Techniques In Film Processing," Thermoplastic Recording of Pictures," "New Japanese Video-tape Recorder," "Training Army Personnel For Motion Pictures and Television," and papers on the new Eastman Kodak films described in a preceding paragraph.

★

NBC's Bill Burch Named Top TV News Cameraman of Year

Following the screening of 141 entries comprising 75,000 feet of newsfilm, Bill Birch, cameraman for NBC News in Chicago was voted "Cameraman of The Year" in the newsreel classification of the News Pictures of The Year Competition. Event, an annual affair, is jointly sponsored by the National Press Photographers Association, the Univ of Missouri School of Journalism, and Encyclopedia Britanica.

Birch won first prize in the General News category with the entry, "Little Rock Riots"; second prize in the documentary category with "Fourth Coast," a film on the St. Lawrence Seaway; and a special citation for Sound-On-Film with the footage from Little Rock.

★

F&B Inaugurates Film Production Consultation Service

Florman & Babb, Inc., 68 West 45th Street, New York, now offers a worldwide film production consultation service, according to announcement by Arthur Florman, company president and a recognized authority on production methods and techniques.

Florman recently completed a 30,000-mile global tour of motion picture production centers, observing and advising on production facilities in The Netherlands, England, Canada, Italy, Germany, Venezuela, Haiti, Panama, Granada, and Nassau. The project will be resumed in the fall when Mr. Florman expects to visit Japan, Philippines, Thailand, Pakistan, Israel, Turkey and Greece. •

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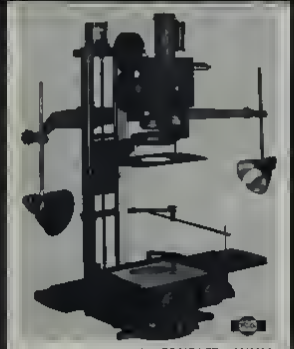

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WHAT'S NEW

in equipment, accessaries, services

Lightar, Smallar ColorTran

Natural Lighting Corp., 603 So. Flower St., Burbank, Calif., announces a new converter for use with ColorTran or similar lighting equipment. Trade-named the Cinemaster, Jr., unit features light weight and small size, yet retains the versatility and control characteristics of company's larger converters.

New unit can be set to match in-put voltages from 110 to 220 volt lines. A direct-reading meter facilitates setting the intensiy and color temperature of lights fed by the converter.

Splicing Tape Dispenser

Quick Splice Mylar tape for butt-splicing and repair of torn film and sprocket holes is available in a new typa dispenser pack in 8mm sprocketing, in 16mm single-perforated for either magnetic or optical sound films, and in 35mm size for both strip films and motion pictures. List price for all sizes is $5.00 per dispanser and film. Manufacturer is Hudson Photographic Industries, Inc., Irvington On Hudson, N.Y., who advise the packs are available from most photographic stores.

8mm/16mm 35mm Color Procassors

Filmline Corp., Milford, Conn., announces a complete line of color film processors for 8mm, 16mm and 35mm Kodachrome film consisting of four processing units, each complete and having individual features, different film travel and processing speeds, etc. Prices range from $34,850 to $111,000. Complete specification sheets on each model may be had by writing manufacturer direct.

Hi-hat For Arriflax

A lightweight hi-hat, designed especially for use with Arriflex 35mm cameras, is announced by Cinekad Engineering Co., 763 Tenth Ave., New York City, N.Y. Device can be used with any tripod fitted with ¼-in. or ⅜-in. tie-down screws. Three holes are provided in base of hihat to facilitate mounting it as required for a wide range of uses where a tripod-mounted camera cannot be used.

Wind Machine

The Windmaker is latest item of equipment in the growing list of effects devices being manufactured by Mole-Richardson Co., 937 No. Sycamore Ave., Hollywood 38, Calif. Designed especially for studio use, it produces maximum air flow with minimum noise. There are vanes for regulating air stream direction, rheostat for variable speed control, and a tilting and panning range of 360°. Operating on either AC or DC current, the unit comes in two sizes: 32 inches and 100 inches high. List prices are $47,80 and $67.50, FOB Hollywood, Calif.

Film and Tape Cleaner

A solvent film cleaner designed to clean motion picture film and tape rapidly, safely and automatically is avail-

Continued on Page 338

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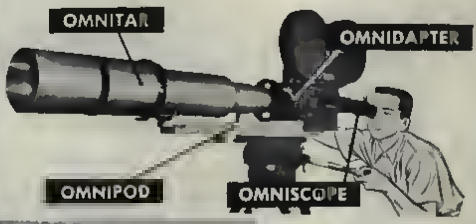

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Memo From The Editor:

AMERICAN CINEMATOGRAPHER provides its readers with latest information and developments on motion picture photography and related techniques in all fields of motion picture production. New filming ideas and news of cameramen's experiences plus pictures and descriptions of new equipment, accessories and services make it invaluable to everyone interested in improving film production techniques. Get your copy regularly each month. Subscribe today, using the detachable postcard inserted in this issue.

WHAT'S NEW

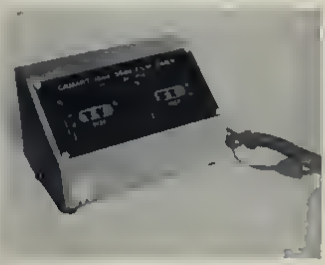
Continued From Page 336

able from Computer Measurements Co., 12970 Bradley Ave., Sylmar, Calif. Manufactured by Unicorn, the unit, which handles both 16mm and 35mm film widths, is completely self-contained and operates at any speed up to 300 feet per minute. Solvents used in the cleaning process are continuously filtered and reclaimed so that waste is held to a minimum.

Model A-5100 for 16/35mm film lists for $5,500. Models are also available for other film widths.

Professional Viewfinder

The M-H Professional Viewfinder is now distributed nationally by SOS Cinema Supply Corp., New York and Hollywood. Custom-designed for use with 16mm Auricon, Bell & Howell, Bolex, and Cine-Special cameras, the finder provides a 2" x 3" brilliant image, upright and corrected right to left. Focusing and parallax controls range from 2 feet to infinity. Engraved aperture outline, with crosshairs in the center, shows field of the standard 25mm lens for 16mm cameras. The ground glass, however is larger in size, extending beyond the lens area permitting cameraman to see action outside the range of his lens pickup. Illustrated brochure is available by writing the company at 602 West 52nd St., N.Y., N.Y.



Film Timer

An electric timer and footage counter for 16mm and 35mm films is available from Camera Mart, Inc., 1845 Broadway, New York 23, N.Y. Enclosed in a compact gray case with sloping panel are two synchronous timing motors and two precision footage counters that indicate total footage and its equivalent in minutes and 10ths. List price of unit for either 16mm or 35mm film is $85.00. A combination 16/35mm unit, minus timer, is available at same price. ■

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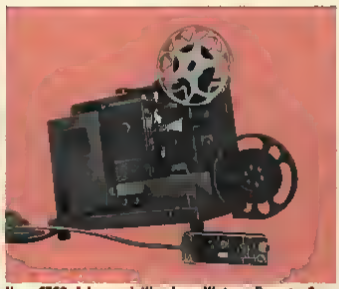

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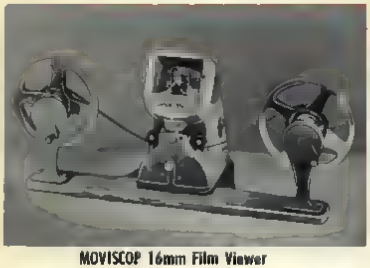

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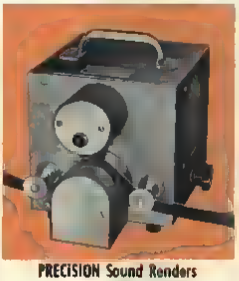

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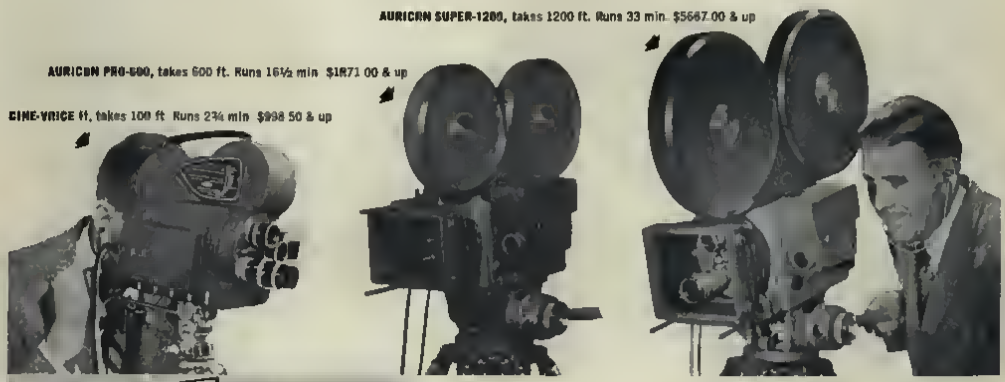

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HOLLYWOOD BULLETIN BOARD

News and pictures of the ASC, its members and industry personalities

RETIRING PRESIDENT Walter Strenge (left) hands gavel of office to ASC's President-elect Lee Garmes at ceremonies at Society's clubhouse last month

TRADITIONAL MEMENTO, the Past President's Plaque was subsequently presented to predecessor by President Garmes

Lee Garmes, newly-elected President of the American Society of Cinematographers, made his first appearance in that capacity following his inauguration at the Society's dinner-meeting April 25th

Donald Crisp, veteran motion picture actor and director conducted the installation ceremonies Seated on the ASC's Board of Directors, in addition to Garmes, were Harold Rosson, 1st Vice-President, William Daniels, 2nd Vice-President; Joseph Biroc, 3rd Vice-President; Charles G. Clarke, Secretary; Victor Milner, Sergeant-at-Arms; and Walter Strenge, Treasurer

VETERAN actor and motion picture director Donald Crisp (left) installed new President and Board Members, was presented plaque by Past-president Arthur Miller commemorating his many services to industry's cameramen.

Associate members Vaughn Shaner, Norwood Simmons, and Walter L. Farley, Jr, of Eastman Kodak Company conducted a demonstration of Eastman's new Double-X Panchromatic film, and presented a slide-illustrated talk on "The Use of Motion Picture Film In Television"

★

Former ASC President Charles G. Clarke, last month was elected to the Board of Governors of the Academy of Motion Picture Arts and Sciences, Hollywood. He, along with incumbent Board member Hal Mohr, will represent the industry's cinematographers in AMPAS affairs.

★

Philip Lathrop, veteran cinematographer, whose name has appeared in the credit titles of many recent TV films such as "Mr. Lucky," "Peter Gunn," and "Rawhide," last month was elected to Active Membership in the American Society of Cinematographers The event also marked the 25th anniversary of Lathrop's career as a motion picture photographer.

★

The ASC's May dinner-meeting, to be held at the Society's clubhouse the evening of May 23rd, has been designated "Walter Strenge Night." At that time Strenge will he honored for his outstanding service to the Society and its members during the many years he served as the Society's President and as an officer and member of the Society's Board of Governors.

ASC MEMBERS inspect Mitchell Camera Company's new 35mm reflex camera which was on display at the Society's April meeting

★

William Daniels, ASC, who has photographed Frank Sinatra's last three pictures, will not only photograph Frank's upcoming "Slovik," but has also been named a producer on the picture.

★

Irving Browning, one-time cinematographer, head of Camera Mart, Inc., New York, and President of the Society of Cinema Collectors and Historians, celebrated his 50th year in the motion picture business last month. ■

PHOTOGRAPHIC ASSIGNMENTS

What the industry's cameramen were shooting last month

By MARION HUTCHINS

ALLIED ARTISTS

EUGENE POLITO, "The Plunderers," (August Prodns.), with Jeff Chandler, Marsha Hunt, Dolores Hart. Joseph Pevney, Prod Dir

AMERICAN NATIONAL

CURT FETTERS, MONROE ASKINS, RICHARD RAWLINGS, "Tombstone Territory*" (Ziv-TV) with Pat Conway

WILLIAM WHITLEY, ASC, "Men Into Space"* (Ziv-TV) with Bill Lundigan.

JACK MARQUETTE, RICHARD RAWLINGS, "This Man Dawson"* (Ziv-TV) with Keith Andes.

RICHARD RAWLINGS, JACK MARQUETTE, MONROE ASKINS, "Bat Masterson"* (Ziv-TV) with Gene Barry.

JACK MARQUETTE, RICHARD RAWLINGS, "Sea Hunt" (Ziv TV) with Lloyd Bridges.

CASCADE PICTURES

ELWOOD BREDELL, ASC, Commercials*

ROY SEAWRIGHT, Commercials*

COLUMBIA STUDIOS

OSWALD MORRIS, "The Guns of Navarone" (Color, Highroad Prod.; shooting in Greece) with Gregory Peck and David Niven, Alexander Mackendrick, director.

CHARLES LAWTON, JR., ASC, "The Wackiest Ship in the Army" (CinemaScope & Color, Fred Kohlmar Prods. shooting in Hawaii) with Jack Lemmon and Ricky Nelson. Richard Murphy, director

JOE MACDONALD, ASC, "Pepe" (George Sidney Int'l Posa Prods.; CinemaScope & Color) with Cantinflas, Dan Dailey and Shirley Jones George Sidney, producer-director.

IRVING LIPPMAN, Commercials* (Screen Gems).

DESILU STUDIOS—Hollywood

ROBERT DE GRASSE, ASC, "Jack Benny Show"* (Desilu Prods.) with Jack Benny Norman Abbott, director

WALT DISNEY STUDIOS

EDWARD COLMAN, ASC, "The Absent-Minded Professor" with Fred MacMurray and Nancy Olson Robert Stevenson, director

LUCIEN BALLARD, ASC, "Swamp Fox"* with Leslie Nielson and Jory Page. Lewis Foster, director.

GENERAL SERVICE STUDIOS

HAROLD LIPSTEIN, ASC, "Adventures of Ozzie & Harriet"* (Stage 5 Prods.) with Ozzie, Harriet, David and Rickey Nelson Ozzie Nelson, director.

GOLDWYN STUDIOS

LEON SHAMROY, ASC, "Go North" (CinemaScope & DeLuxe color) with John Wayne and Stewart Granger Henry Hathaway, director

MAURY GERTSMAN, ASC, "Cage of Evil" (Zenith Pictures; UA release) with Ron Foster and Pat Blair Edw. L. Cahn, director

INDEPENDENT

CHARLES LANG, JR., ASC, "The Magnificent Seven" (Panavision & Color; shooting in Mexico) with Yul Brynner and Eli Wallach John Sturges, producer-director.

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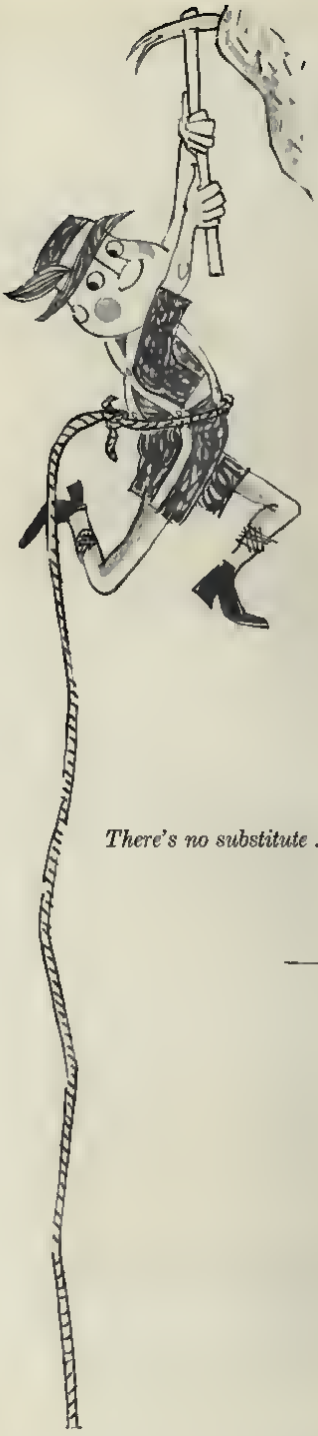

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PHOTOGRAPHIC ASSIGNMENTS

Continued From Preceding Page

DESMOND DICKINSON, "Kanga" (AIP; Eastman Color, shooting in London) with Michael Gough and Margo Johns John Lemont, director

SAM LEAVITT, ASC, "Exodus" (Panavision & Color; Otto Preminger Prod.; U A release, shooting in Israel) with Paul Newman and Eva Marie Saint Otto Preminger, director

HASKELL WEXLER, "Angel Baby" (Madera Prod., Continental Distributing Co.) with George Hamilton and Mercedes McCambridge Paul Wendkos, director.

FRANK PLANER, ASC, "King of Kings" (Technicolor, Samuel Bronston Prods.; shooting in Spain) with Jeff Hunter and Robert Ryan. Nicholas Ray, director.

JERRY FAIRBANKS STUDIOS

KENNETH PEACH, ASC, Commercials* (Jerry Fairbanks Prod.)

KEYWEST STUDIOS

WALTER STRENGE, ASC, Series of religious films* (Family Films) Harold Schuster, director.

METRO-GOLDWYN-MAYER

PHILIP LATHROP, ASC, "Peter Gunn"* (Spartan Prods.) with Craig Stevens and Lola Albright

KIT CARSON, "Brothers Brannagan"* with Steve Dunne and Mark Roberts.

ROBERT BRONNER, ASC, Commercials.*

JOSEPH RUTTENBERG, ASC "Butterfield 8" (Afton-Linebrook Prod.; shooting in N.Y.) with Elizabeth Taylor and Laurence Harvey Daniel Mann, director.

MILTON KRASNER, ASC, "Go Naked in the World" (Arcola Prod.) with Gina Lollobrigida and Anthony Franciosa Ranald MacDougall, director.

JOHN NICHOLAUS, "Rawhide"* (CBS-TV) with Eric Fleming and Clint Eastwood

PARAMOUNT STUDIOS

ROBERT BURKS, ASC, "The Pleasure of His Company" (Technicolor, Perlberg Seatan Prod.) with Fred Astaire and Debbie Reynalds. George Seatan, director.

JOSEPH LASHELLE, ASC, "All in a Night's Work" (Hal Wallis Prod.) with Dean Martin and Shirley MacLaine Joseph Anthony, director

LOYAL GRIGGS, ASC, "G.I. Blues" (Color; Hal Wallis Prod.) with Elvis Presley and Juliet Prowse Norman Taurog, director.

PARAMOUNT SUNSET STUDIOS

FLEET SOUTHCOTT, "Gunsmoke"* with James Arness and Dennis Weaver

FRANK PHILLIPS, "Have Gun Will Travel"* with Warner Anderson and Tom Tully.

REPUBLIC STUDIOS

RUSSELL METTY, ASC, "Midnight Lace" (Color, Arwin Prods.) with Doris Day and Rex Harrison David Miller, director.

CHRIS CHALLIS, "The Grass is Greener" (Grandon Prods., shooting in England) with Cary Grant and Deborah Kerr Stanley Donen, director

GEORGE DISKANT, ASC, "Johnny Ringo"* (Four Star Prods.) with Don Durant

ROBERT BURKS, ASC, "The Great Impostor" with Tony Curtis and Karl Malden Robert Mulligan, director.

ERNEST PALMER, ASC, 'Three Blondes in His Life" (Golden Films Prod Cinema Associates release) with Jock Mahoney and Greta Thyssen Leon Chooluck, director

ELLIS CARTER, ASC, "Seven Ways From Sundown" (color) with Audie Murphy and Barry Sullivan George Sherman, director.

HARRY WILD, ASC, "Robert Taylor Detectives"* (Four Star Prods.) with Robert Taylor

EMMETT BERGHOLZ, "Death Valley Days"* (Filmaster Prods.)

REVUE STUDIOS

ELLIS THACKERY, ASC, 'Overland Trail* (Revue Prods.).

LIONEL LINDON, ASC, RAY RENNAHAN, ASC, "M Squad"* (Latimer Prods.) with Lee Marvin

JOHN RUSSELL, ASC, JOHN WARREN, ASC, "Alfred Hitchcock Presents"* (Revue Prods.)

MACK STENGLER, ASC, "Leave it to Beaver"* (Gomalco Prods.) with Barbara Billingsley and Hugh Beaumont. Norman Tokar, director

ELLIS THACKERY, ASC, "Running Special"* (Revue Prods.)

WILLIAM SICKNER, ASC, "Wells Fargo"* (Overland Prods.) with Dale Robertson

BENJ KLINE, ASC, Wagon Train"* (Revue Prods.) with Ward Bond.

JOHN WARREN, ASC, WILLIAM SICKNER, ASC, "Coronado 9"* (Revue Prods.)

RAY CORY, ASC, BENJ KLINE, ASC, WILLIAM SICKNER, ASC, "Shotgun Slade"* (Revue Prods.)

LIONEL LINDON, ASC, RAY CORY, ASC, "Johnny Midnight"* (Revue Prods.)

JOHN WARREN, ASC, LIONEL LINDON, ASC, 'Markham '* (Revue Prods.) with Ray Milland.

TWENTIETH CENTURY-FOX

ELLSWORTH FREDRICKS, ASC, "High Time" (C'Scope & Color) with Bing Crosby, Fabian and Nicole Maurey. Blake Edwards, director.

WINTON HOCH, ASC, "Lost World" (C'Scope & Color, Saratoga Prods.) with Michael Rennie and Jill St John Irwin Allen, director.

WILLIAM MELLOR, ASC, "One Foot in Hell" (C'Scope & Color) with Alan Ladd and Don Murray James B Clark, director

DANIEL FAPP, ASC, "Let's Make Love" (C'Scope & Color) with Marilyn Monrae and Yves Montand. George Cukor, director.

WILFRID CLINE, ASC, "The Tate and Happy Series"*.

WARNER BROS STUDIOS

RALPH WOOLSEY, ASC, RAY FERNSTROM, ASC, BURT GLENNON, "Bourbon Street Beat"* with Richard Long and Andrew Duggan

ROBERT HOFFMAN, "77 Sunset Strip"* with Efrem Zimbalist, Jr

EDWIN DUPAR, ASC, WESLEY ANDERSON, "Hawaiian Eye"* with Authony Eisley

RALPH WOOLSEY, ASC, ROBERT HOFFMAN, "Lawman '* with John Russell

EDWIN DUPAR, ASC, RAY FERNSTROM, ASC, RALPH WOOLSEY, ASC, "Colt 45"* with Wayde Preston

Continued on Page 382

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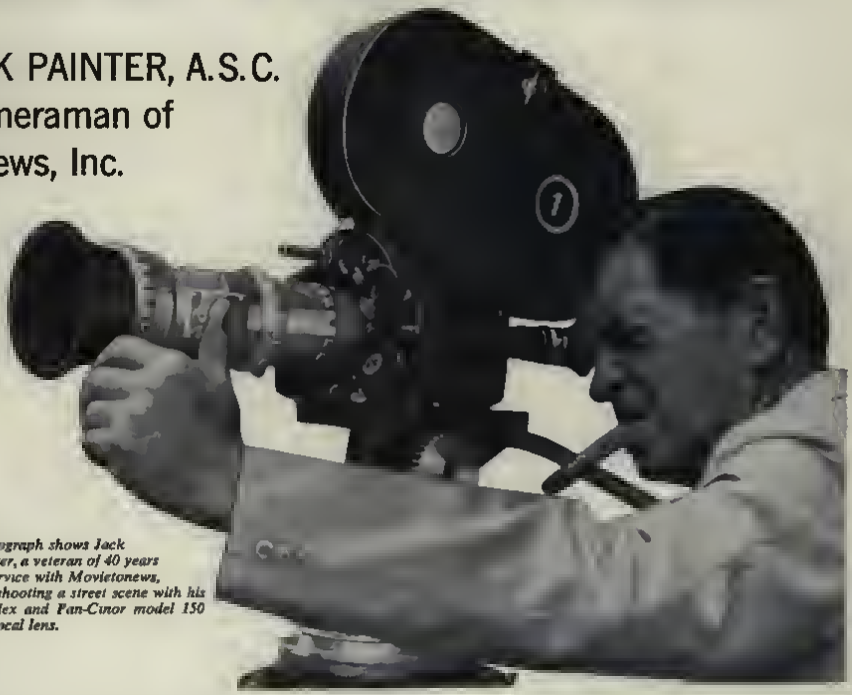

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The Development Of Follow-Focus In Cinematography

The need to maintain sharp focus throughout a moving camera shot led to some interesting developments in lens and parallax controls for motion picture cameras.

THE EXTENT TO WHICH crane and dolly shots are used today never would have been possible without the development of automatic follow-focus. Without it, moving camera shots could not be held in sharp focus throughout a take except with the greatest of difficulty. Today, the focus ring on the lens is changed progressively and automatically forward or backward by remote control as the camera moves toward or away from the subject in a dolly or crane shot.

Before the coming of sound, neither the matter of finder parallax nor that of follow-focus was considered important. Finders were placed very close to the photographing lens, reducing parallax to the minimum, and as moving camera shots were seldom made in those days, finder parallax could be compensated by setting the finder according to a pre-calibrated scale, or by checking the angles against that seen on the ground glass.

With the advent of sound, cameras were placed in relatively large, sound proofed blimps. This necessitated either enclosing the finder with the camera, thereby restricting the operator's freedom in viewing the finder image, or placing the finder outside the camera blimp, at a considerable distance from the camera lens, inevitably increasing the problem of finder parallax to a high degree. Almost at the same time, the moving camera and other techniques were introduced, and these made following focus a factor in an increasing number of shots.

Among the men in the industry to tackle the problem was John Arnold, ASC, former executive director of photography at Metro-Goldwyn-Mayer Studios. Arnold developed a successful semi-automatic follow-focus finder for use on studio cameras. The device, which won one of the Academy's technical awards in 1937, facilitated camera operation by correlating the focusing of the shooting lens and finder lens and simultaneously correcting for parallax. This was accomplished with such precision that the sharpness of focus in the finder could be relied upon to indicate corresponding properties in the photographic image, thereby materially increasing the speed and accuracy of production photography, particularly in follow-focus shots.

Conventional practice revealed plenty of methods by which a finder could be pivoted to correct for parallax, making its field of view coincide with that of the camera lens. Similarly it was easy to design a finder with a lens which, like the camera lens, could be focused. But to interlock these with the actual focusing of the camera lens was a difficult problem—especially since it was desired to make the finder equally accurate for lenses of all the many focal lengths commonly used.

The answer was found in the use of precision-made cams. Since, with the exception of the somewhat infrequent use of wide-angle 24mm lenses, it was not difficult to interlock the focusing of the finder lens with the parallax-correcting pivoting of the finder itself, interlocking these movements with the focus of the photographing lens was achieved by the use of a simple cam-and-roller linkage.

Thus, with these improvements, it became possible for the camera operator to keep his camera lens in sharp focus throughout a dolly or zoom shot, merely by watching the scene in the camera finder and turning the focusing control as required to keep the image sharp.

The action of the finder was governed by the use of interchangeable cams, each ground to the precise curvature which matched the characteristics of a given lens. The cams were matched, not merely to the general characteristics of all lenses of a given focal length, but to the precise characteristics of each individual lens. Lens and finder cam formed a fixed combination in any camera's accessory equipment.

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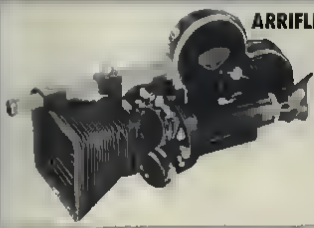

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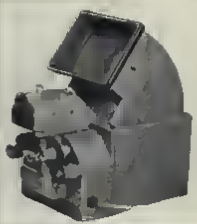

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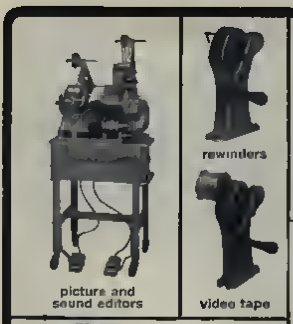

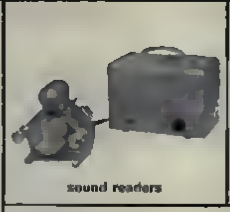

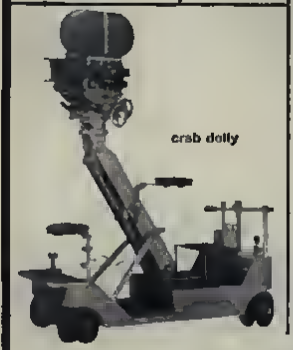

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FOLLOW-FOCUS

Contd. from Page 346

lenses of different foci were cut to differing pitches, according to the characteristics of the lens. Thus, over the range of settings between infinity and two feet, a 24mm lens required less than a half revolution of the controlling handle, while over the same range, a 4½" lens required over a full revolution of the handle.

The scales for all commonly used lenses were permanently engraved on a single focusing dial, and a movable indicator on the controlling handle obscurred all but the calibrations for the lens being used.

The owners of Mitchell NC, Standard and 16mm cameras now may broaden the scope of their operations to include follow-focus and dolly shots, thanks to a new lightweight, easily operated follow focus attachment available from Mitchell Camera Corporation.

Follow-focus is no problem with the Mitchell BNC studio camera, where automatic follow-focus control is an integral part of the camera. The focusing controls are geared to the single camera lens (there is no turret on the BNC) and to the camera viewfinder. As the follow-focus controls are operated, the camera and viewfinder are in identical focus, and the viewfinder is automatically corrected for parallax. Thus, for follow-focus shots, the camera crew has complete focusing control at all times, and the subject is followed perfectly.

To provide this same convenience for users of the NC, Standard and 16mm models, Mitchell designed a readily-mounted follow-focus attachment. It is the only mechanism of its kind available, which couples the finder directly to the lens and which is designed for use with Mitchell cameras. It assures full control of picture framing and lens focusing, particularly at close, critical ranges.

It is easy to install and remove. The attachment does not interfere with the use of any standard accessories, and is supplied complete with mounting bracket. Only in the case of older Mitchell cameras now in use, is it necessary to drill a small hole in the base of the camera for mounting the follow-focus attachment.

Once it is attached, all follow-focus control is accomplished through the use of the follow-focus control knob. Use of this accessory results in saving much production time on the set normally required for the solving of follow-focus parallax control.

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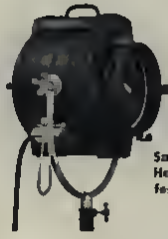

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WALTER STRENGE'S

QUESTIONS & ANSWERS

Need advice on a picture making problem? Your questions are invited and will be answered by mail. Questions and answers considered of general interest will appear in this column each month.

Q Where a protective coating is to be applied to a motion picture film that will also have a laminated magnetic track applied for post-recorded sound, should the sound track be applied before or after the protective coating is applied? If the laminated track is applied first, and then the entire film coated for protection, can sound be recorded satisfactorily on the track? —J. G. V.

Answer: The track lamination should be applied before the protective coating. If the latter is well applied and very thin, it will not adversely affect either the magnetic recording or reproduction.

In general, protective coatings are applied to motion picture film to prevent damage by scratches and abrasion of the photographic image. Application is usually headed on with a roller, or applied with a wick by mechanical equipment. Another treatment often given film is waxing of the sprocket hole area to insure better movement of the film through the projector shoes, thus increasing film life. It is advisable, where possible, to keep both the protective coating material and the wax away from the magnetic stripe area so as not to add to the dirt problem of the magnetic heads.

Q Because materials for animation work are difficult to obtain here in Bangkok, please advise what companies in the United States supply materials such as colors for cartoon drawing on celluloid, air brush and brush and pen for coloring cartoons, and drawing sets for animated cartooning.—S. B.

Answer: S.O.S. Cinema Supply Corp., Camera Equipment Co., Inc., Florman & Babb, Inc., and Animation Equipment Corp. The addresses of all but the last named can be obtained from the ads of each, which appear elsewhere in this issue. Address of the last named company is New Rochelle, New York.

Q What is the correct method to follow in taking a light reading on a motion picture set with an incident light meter: 1) at subject position with the meter pointed at the camera, or 2) at subject position with meter pointed at key light.—A. H.

Answer. Both methods should give the same result *provided* the incident light meter is the type with the hemisphere light collector, and that the flat-cell meter used to measure key light intensity is equipped with means to take into account the geometry of the illumination—that is, whether the key light comes from the front, side or back. In either method all set lights should be lit.

Q Please answer some questions regarding the Bolex H-16 reflex camera. Is a beam-splitter used in the viewer system? If so, does this cut down on the amount of light transmitted through the lens, and is there any consequent effect on image sharpness? How has the Bolex H-16 RX camera been improved over the Bolex H-16, and how is the latter rated for image steadiness and registration?—P. E. P.

Answer: That's quite an order, but here goes. The viewer employs a beam-splitter. The image is picked up behind the lens and in front of the shutter by a reflecting-prism, and is then reflected to the eye-level focusing device through a magnifier, which also inverts the image right side up and magnifies it approximately 6 times.

The resultant light loss is negligible and requires no exposure adjustment.

Basically, the Bolex H-16 is the same as all other current models—the latter having a 20% more powerful motor, registration claw and new claw mechanism incorporating a lateral-stabilizer for rock-steady pictures.

Q When projecting a scene on a ground glass screen for rear-projection photography, a "hot-spot" often occurs. How can this be eliminated? —L. A. B.

Answer: Use a neutral density filter, cut to size required and place in front of projector lens. Use of a lens too short in focal length is often a contributing factor where a "hot spot" occurs. Try moving back with the projector and using a longer lens to project image. ■

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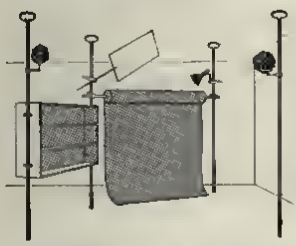

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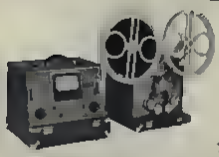 TYPE 1	The Type 1 is a miniaturized version of the Type 5. Low power consumption and extreme portability has made this 39 lb. unit a popular selection for remote location production by leading professional motion picture studios. From $1360.	X			X	X	X	X	X		OPTIONAL	X				X	X	OPTIONAL
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TYPE 5	The most popular magnetic film recorder in the world is the Type 5! With this unit and all its operational conveniences, you are definitely in the "major league." The Type 5 owner always starts his pictures with a special feeling of confidence in the realization that he has allowed no compromise in the selection of equipment. From $1570.		X	X	X	X	X	X	X	X	X	X				X	X	OPTIONAL
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June 1959 issue

AMERICAN

Cinematographer

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featured the ARRIFLEX 16 in a four page editorial repart and headlined it...

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(illustrations and captions from the same report)

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SIDE VIEW of blimp with doors open. Three separate doors are provided for easy access to interior: one on top for mounting 400-ft. magazines, another in front for access to lenses and turret, and on the side, for inserting the camera.

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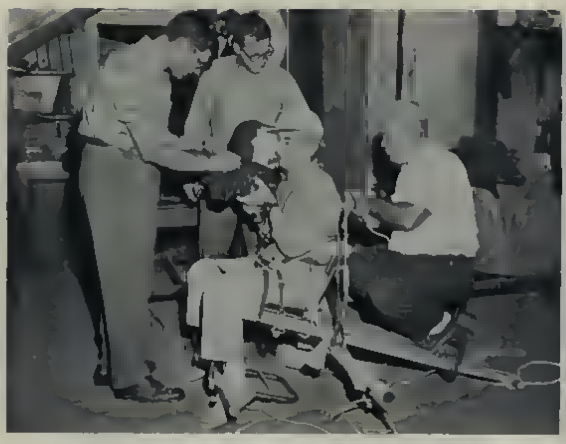

FOR FOLLOW SHOT of Anna Magnani fleeing down steirs and thence to rear of store, operator Saul Midwal was strapped to chair mounted on plank, then tilted over balcony edge by grips L to R in photo ora: Harold Pesner, assistant; Eddie Knott, head grip; Midwal; and Jimmy Gatland, grip

STRAPPED TO CHAIR, Midwal has discarded his cigar and is ready to make the shot, as grips and technicians prepare to tilt the rig, which will permit him to cover Magnani's stair descent and then follow her flight to rear of store. Cinematographer Boris Kaufman (white sweater) prepares to give "go" signal

FILMING "THE FUGITIVE KIND"

Creative lighting and imaginative black-and-white photography lend a fillip to otherwise downnbeat Tennessee William story.

By FREDERICK FOSTER

"THE FUGITIVE KIND" begins in a violent rainstorm and ends in a fire, and in between the seamy story unfolds in a downbeat if not degrading atmosphere befitting its theme. Whatever one's reservations about it, the picture's effect on the viewer is due as much to the visual impact of the photography as to the plot and characterizations concocted by Tennessee Williams.

Produced by Jurow-Shepherd-Pennebaker for United Artists, "The Fugitive Kind" was photographed by Boris Kaufman, ASC, and stars Marlon Brando, Anna Magnani, and Joanne Woodward. The story is set in a small Mississippi town, time the present. Location filming was at Milton, New York, a small town chosen for its resemblance to a typical Southern community. Shooting was completed on sound stages of the Gold Medal Studios in New York City.

Brando is a disillusioned honky-tonk entertainer from New Orleans, who becomes involved as a hired hand and lover with the wife of a brutal small-town storekeeper dying of cancer. Also getting in his hair frequently is a degenerate blond always on the bottle and who breezes in and out of the picture in a battered sports car in her pursuit of Brando. The latter finds work in the small general store and despite his efforts to avoid her, ultimately gets involved with the owner's wife, played by Anna Magnani. The husband, Victor Jory, suspects their affair and in the closing scenes of the picture he shoots his wife, sets fire to her confectionery adjoining the store, and Brando is consumed in the conflagration. Limited space precludes elaborating on the full story or pointing up the dramatic high points.

Suffice to say that Director of Photography Boris Kaufman's work was cut out for him when the producers chose Sidney Lumet to direct the picture. Lumet and Kaufman have a particular affinity for the type of social dramatics conceived by writers like Williams, so Kaufman was more than enthused with the prospects for imaginative photography which "The Fugitive Kind" not only promised but demanded.

"The blend of the grotesque and the tragic inherent in Tennessee Williams' writing had to be stated visually," Kaufman explains "If the attempt succeeded, it would result in a style peculiar to the story. The search for, finding, and then maintaining that style is to me the most exciting and rewarding part of the cinema art.

"It goes without saying that to be daring in film production is risky and should never be attempted without the

ANNA MAGNANI rehearses her flight down the stair as camera operator Midwal covers her action with the hand-held Arriflex 35mm camera. Grips have moved his trapeze mounted rig forward to edge of balcony, where Midwal will be moved in a vertical arc as he makes the shot.

MIDWAL IN FULL TILT. He battles to hold camera rigid as he keeps it focused on the fleeting Miss Magnani. Strong trappings and heavy ropes hold him securely, enabling him to concentrate entirely on shooting the scene as planned. Boris Kaufman stands on stairs, watching technicians assist in the difficult shot.

close cooperation of the director. Sidney Lumet was always with me when something daring in the photography was proposed, and he encouraged anything I did that could enhance the visual interpretation of a scene.

"An example is a scene that takes place in the store between Brando and Miss Magnani. Brando, by inference, describes himself as a bird, soaring aloft, and never lighting on earth until death. Though it is night, I brought strong light through the windows behind him. Then, as Brando spoke, I dimmed the key light on him, and as the camera moved in for an extreme closeup of his face, I gradually lit his eyes and part of his face. At the close of the scene, I abruptly changed this by re-lighting in the original mood to indicate the end of his reverie."

Kaufman is quoted in these early paragraphs purposely in order to establish something of his cinematographic ideals and his flair for establishing and then sustaining moods through lighting and handling of the camera—particularly because "The Fugitive Kind" has been the subject of considerable criticism as a motion picture. Here, we are neither praising nor condemning the production as such, for the purpose of this article is to reveal something of the cinematographer's purpose and the techniques he em-

Continued on Page 379

THE MITCHELL CAMERA, mounted on Maviola crab dolly, is ready to move forward for a mobile camera shot, which Director Lumet is explaining to Miss Woodward and Marlon Brando seated in battered sports car.

FILMING ONE of the many complex interior shots inside the narrow store set. Kaufman, in black shirt, center, watches Brando place his jacket on Miss Magnani as operator Midwal, seated behind the Mitchell camera, makes the shot.

AUTHOR used Auricon Super-1200 16mm camera to photograph performance of symphony orchestra.

Shooting 16mm Plus-X at 1000 ASA

How this film's unusual flexibility and its response to special processing made it possible to photograph with existing light two important indoor events for television.

By GEORGE C. FENYON, C.S.C.

THE UTILIZATION of existing light—the natural light that prevails at the scene of an event—is a technique which, thanks to the continuing development of fast films such as Tri-X—is finding increasing acceptance in photographing subject material for television.

Existing light photography, aside from its expediency, can also enhance the subject matter. The true mood of a situation, for example, very often can be better captured on film when photographed in existing light. On the other hand, shooting under such light conditions can be difficult, particularly when it is done in large areas such as a railway station, museum, concert hall, etc.

Examples are two films which I photographed recently for Canadian television. One was a comprehensive camera report on an important concert given in Montreal by the Vienna Symphony Orchestra; the other, a local performance by the Polish Ballet troupe. Almost the entire photography of both events was carried out with the use of existing light.

The heavy schedules of both companies, the necessity to shoot arrivals and departures at the railway station, and shooting during rehearsal, makeup and dressing periods made the task unusually difficult. The fact that my assistants and I were not permitted to bring lighting equipment into the theatre or concert hall forced the decision to work with existing light from start to finish of both events. Earlier, I had even considered using a portable light unit such as many newsreel cameramen employ clamped to their cameras. But this idea was discarded when it was found the scope of the lamp's coverage and quality of the light did not suit our requirements.

There were other problems, too. One was to select a film having a high ASA index, which would be printable with good results when used under all the varied light conditions that would be encountered, and which would best lend itself to extreme boosting in the development process.

My earlier experience with "fast" emulsions plus some expert advice from Jose Mena, supervisor of the Mount Royal film laboratory in Montreal, led to the choice of Plus-X Type B 16mm negative. Supported by results of previous tests, it was decided to boost the potential of this film and to work with it on the basis of an ASA index of 1000. This very stable emulsion had previously performed well for me at ratings of 200, 400, 600, and 700 ASA. The chief objections to extreme boosting of an emulsion are the resulting grain increase and severe loss of gray-scale gradations. But chemical compen-

Continued on Page 373

SHOOTING WITH Plus-X Type B 16mm film on the basis of 1000 ASA, enabled author to capture interior scenes such as this having depth and detail.

A REALLY TOUGH subject to film with existing light, even with film boosted to 1000 ASA. The natural illumination lent an unusual aspect of naturalness to the symphony concert scenes.

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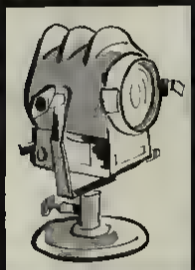

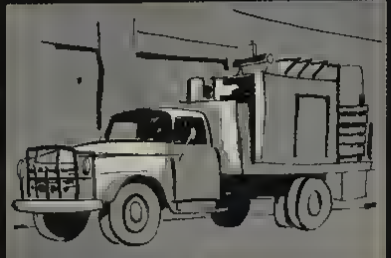

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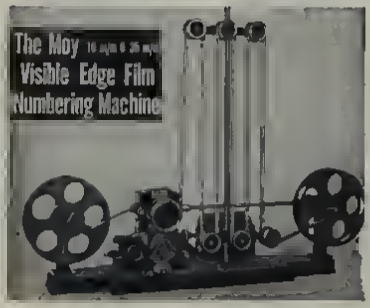

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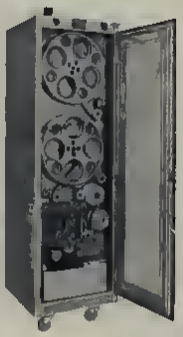

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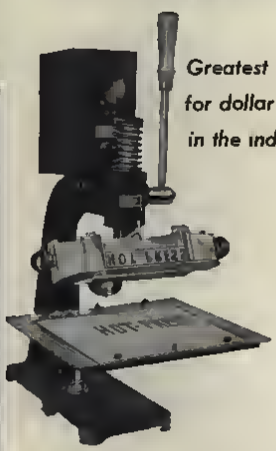

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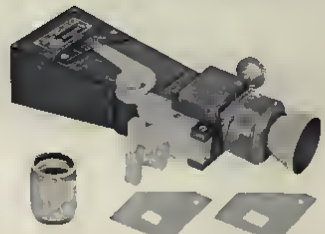

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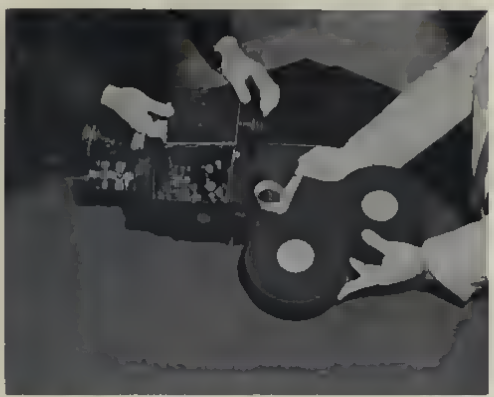
CONTOUR at inverted film magazine provides solid but comfortable shoulder support for Mitchell's new 35mm reflex camera

EXAMINING MECHANISM of the Mitchell 35mm Reflex camera at recent demonstration at the ASC Clubhouse in Hollywood are (left to right) Walter Strenge, ASC, John D McCall, Exec Vice-Pres of Mitchell Camera Corp., and Charles Lotspeich, Mitchell's Project Engineer



CLOSE VIEW of the Mitchell 35mm Reflex showing magazine detached from main body of camera Magazines of various sizes may also be mounted on top in conventional manner when camera is to be used on a tripod

Mitchell Introduces New 35mm Reflex Camera

Dual shutters, thraugh-the-lens reflex viewing, and unique shoulder-rest design af magazines are innovations featured in Mitchell's latest professianal motion picture camera.

By JOSEPH V. MASCELLI

MITCHELL CAMERA COMPANY'S new lightweight 35mm reflex motion picture camera was given its initial public preview last month at the clubhouse of American Society of Cinematographers. The prototype Model R 35 of the first American-made mirror reflex motion picture camera incorporates unique solutions to many of the perplexing optical and mechanical problems that heretofore have confronted engineers in designing and constructing cameras of this type.

The new R-35 combines streamlined design and full-aperture reflex viewing and focusing with all the time-tested features originated and made famous by Mitchell Camera Corp. The reflex viewing feature supplants the traditional Mitchell rackover in this new camera, and the camera's relatively light weight makes it easy to operate hand-held All the 35mm wide-screen techniques, including CinemaScope, are possible with this camera, which will accommodate zoom and other special lenses

The camera's outstanding design feature perhaps and one that is a radical departure for Mitchell, is the dual shutter assembly While Mitchell engineers recognized the importance of the reflex shutter for certain types of cinematography, they were most anxious to retain Mitchell's time-tested variable focal-plane shutter for optimum photographic efficiency. The engineering solution has resulted in a unique double-shutter arrangement in the camera that combines the reflex mirror shutter, with its full-frame parallax-free focusing and viewing convenience, with the focal plane variable-disc shutter for positive exposure control over the entire area of the aperture.

The reflex shutter's primary function is to provide re-

Continued on Page 371

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The term "tracking," in the vernacular of the motion picture music editor, means fitting existing music to a given scene or sequence in a motion picture, as opposed to using music specially written and recorded. In the process of tracking, the music editor may "try for size" a great number of recorded musical passages available from the studio's music library until he finds one best suited to the scene.

TRACKING MUSIC FOR TV FILMS

...fitting library music to TV films is real challenge for music editors

By LOUIS W GORDON

THIS ARTICLE has a two-fold objective The first is to acquaint the TV film producer with the advantages of tracking his shows. The second and most important objective is to emphasize the relationship between the composer and the music editor.

Tracking music isn't new to the film industry. The practice of tracking the preview print prior to scoring started back in the early forties Budget-conscious TV producers started music tracking when television went to film, and it's been around ever since. Quality varies somewhat from one series to another, but this is due to the limitations imposed by the library available and the imagination of the editor.

There are several stock libraries in Hollywood. Some are pretty good but used to death, and because only a few hours of new material have been added over the years, the stuff available sounds pretty jaded. They're not bad for westerns, but a stock music library will not work for a contemporary or jazz show. The stock humor or situation comedy music is worn pretty thin, too. As for the "not so good" libraries, they invariably waste an editor's time and a producer's money on film and transfer cost. The size of a library is never a true indication of its value. Some libraries have several thousand pieces of music, 90% of which was recorded in the early forties; such music is dated and the sound quality usually poor There are a number of libraries designed for radio soap operas These contain little more than corny bridges and should be avoided at all cost

Some studios and producers have gone to live scoring. This is one answer, but what about the show or series that is still not in final cut a week or ten days before air date? This problem seems to be the rule rather than the exception. How can a composer write and record every week under this kind of pressure Something has to give!

There is a satisfactory solution for this problem. Compose a library for a specific series. The style and instrumentation as well as composition fees, supervision, copying, etc., are agreed upon between the producer and the composer. The next step should be the composer's selection of his music editor. Upon this selection rests the success or failure of this type of operation.

Many of the top music editors in the industry have little or no experience in tracking They are great on a feature, but TV is a dirty word to them, and tracking is a dog's job. The experienced tracker falls into one of three general categories: The creative editor; the dull but safe; and the third group might be called "the quick and dirty." Many fall into the "dull but safe" category.

A few tracking editors enjoy the challenge that presents itself in every new reel of film. They study their sequences and understand the dramatic values they wish to attain Then they try many tracks until they are excited by some part of one or more pieces of music. Certain dramatic movements are accented, a few are necessarily compromised, but the overall mood flows and the important punctuation falls into place. The climax pays off and the music tapers away. This is oversimplified to say the least. The music editor can and should think in terms of a dramatist, a composer, and a craftsman.

The true success of the editor's efforts is governed by the quality and flexibility of his library. Very few composers understand music tracking, and even fewer write for this medium. Writing for a track library can be a challenge to a composer. When he understands the music editor's problems he is "half way home."

"Half way home" may not be quite accurate. The composer who can adapt his ideas to the editor's needs has his biggest challenge ahead of him. He must go home and dream up a dramatic or humorous situation and then write without timings. The composer's freedom can be his biggest problem. Too few composers have filed their timing sheets of feature pictures, keeping only their original score, discs, or tapes. Writing to these old timings can be most helpful toward assembling the needed material to qualify a library.

The stories on TV half-hour or hour shows are, in most cases, the feature plot boiled down to its essentials. The TV story moves faster and the scenes are shorter; the character development is rather crudely castrated, but the heavy is still heavy, and our hero still has to fight to win the girl.

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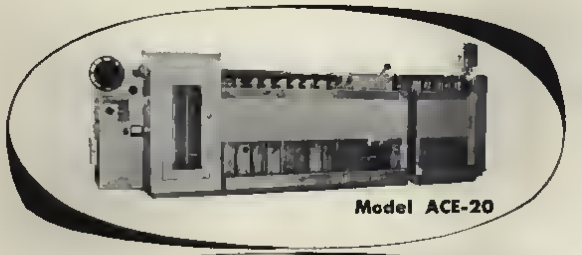

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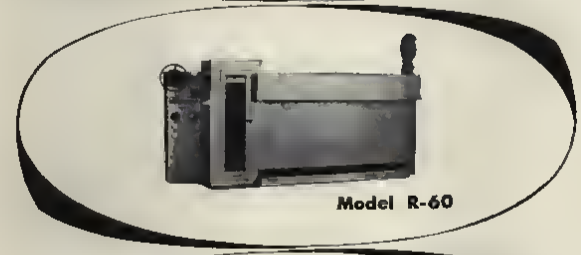

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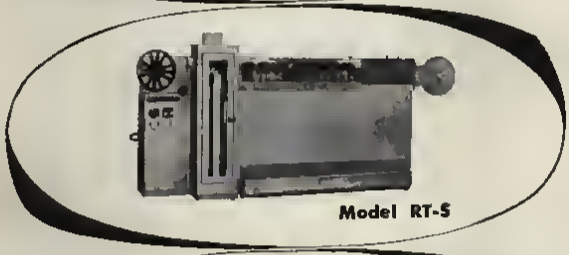

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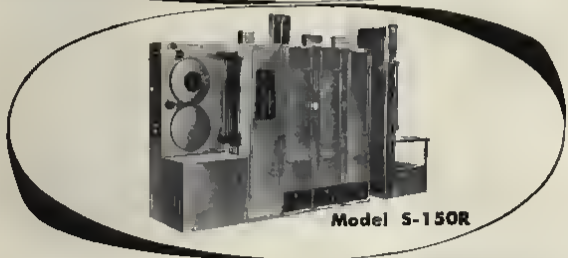

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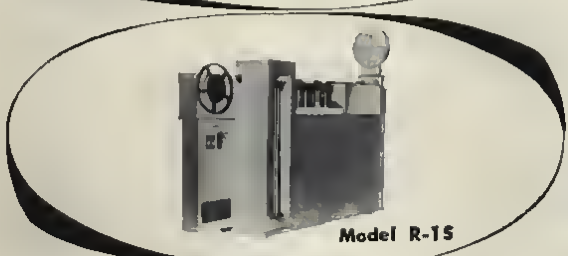

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316 BS	Neg/Pm.	B&W	16mm	60 FPM
416 B	Neg/Pos.	B&W	16mm	85 PPM
M	Neg/Pos	Microfilm	16/35mm	8 PPM
L	Neg/Pm	B&W	16/35mm	8 PPM
BN 16/35	Neg/Pm	B&W	16/35mm	24 PPM
BN 16/35mm	Neg/Pm	Microfilm	16/35mm	24 FPM
316D35	Neg/Pos	B&W	16/35mm	32 FPM
316D35M	Neg/Pm.	Microfilm	16/35mm	32 PPM
416D35	Neg/Pm.	B&W	16/35mm	89 FPM
P81D4	Neg/Pm	B&W	16/35mm	180 FPM
S 150-R	Neg/Pos	B&W	16/35mm	150 FPM
470 ND	Neg/Pos	B&W	70mm	10 FPM
35ND70	Neg/Pm	B&W	35/70mm	30 FPM
70D10	Reversal	B&W	76mm	10 PPM
B 15	Rev B Neg/Pm	B&W	16mm	15 FPM
B15TC	Rev B Neg/Pos	B&W	16mm	15 FPM
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B40TC	Rev B Neg/Pos.	B&W	16mm	25 FPM
BT S	Rev B Neg/Pos	B&W	16mm	85-125 FPM
B 60	Rev B Neg/Pos	B&W	16mm	30 FPM
B 17-35	Rev B Neg/Pm	B&W	16/35mm	17 FPM
R 60S	Rev B Neg/Pos	B&W	16mm	85 FPM
B 90	Rev B Neg/Pos	B&W	16mm	90 FPM
CN 10	Eastman Neg Ektacolor	Color	46mm	12 FPM
CN35-10	Eastman Neg Ektacolor	Color	35/46mm	12 FPM
ENP-25	Eastman Neg	Color	16/35mm	25 FPM
ACE 20	Anseo/Ektachrome 7255 Ektachrome Eastman 50 260 50 270	Color	16mm	22 FPM
ACE 40	Anco	Color	16mm	36 FPM
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THE MUSIC EDITOR'S catalogue is his 'bible.' Each cue (music library recording) is listed according to its dramatic-music content

AFTER NOTING NUMBERS of cues having possibilities for a particular picture or sequence, the editor obtains prints of same from library storage racks which are then played over a sound Moviola.

WHEN CUTTING the sound track, head and tail trims are saved for possible future use. Any music cut is a good cut if it fits the scene and doesn't offend the ear

Timing sheets of old features are a composer's best friend when it comes to writing an underscore library.

Television is viewed in the home and most sets have small amplifiers and speakers. The sound of TV music often leaves something to be desired, so smaller instrumentation seems to be desirable. The full, lush sound of a motion picture theatre seems only to get in the way when played on TV. Dubbing is also hasty so the subtle desires and blends of the feature underscore are frequently lost to the TV viewer. Themeing of continuing characters is sometimes desirable, but these themes should be short and unobtrusive. Because of the rapid movement of story, melodic lines should be kept short—very short. Much of it will be played under dialogue, so any development of thematic or melodic material should be simple.

Short phrases to a complete ending cannot be over-stated. The development builds and releases, or it keeps building, to a climax much the same as a feature score, but there is one big difference. The phrases are short, ten to fifteen seconds, and they come to complete endings. There is no counter melody, obligatto, or anticipation bridging the phrases. Frequent pauses are most desirable. The secret to good tracking is to find the music that feels right for the sequence, or part of it. Then the music is shortened or lengthened — or in a manner of speaking, "warped" to fit the picture. If the editor can get in and out of the music with relative ease, he can spend more time selecting and heightening the dramatics of the scene.

Short, complete phrases are not only helpful to the editor, but they also facilitate an added volume of scoring at a recording session. Since the composer is not working to picture or stopwatch at a recording session, a three-hour session can produce an hour of underscore. If tape is used, another ten to fifteen minutes can be gained. Short phrases cut rehearsal time. Pickups are easy. A second take at a brighter tempo is often desirable. A third with tacit strings or muted brass adds flexibility to the library.

Variations in tempos are extremely useful to the track library. Music for a fight or chase should always be recorded at more than one tempo. Tom-toms or bongos often are more effective than snare drum and cymbal. Try for

Continued on Page 378

EDGE NUMBER ANY MOTION PICTURE FILM WIDTH

- ENM 16 numbers 16MM film every 40 frames. An adjustment bar permits edge numbering the film in any area (16MM only).
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ENM-16-M
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ENM-35
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ENM-70
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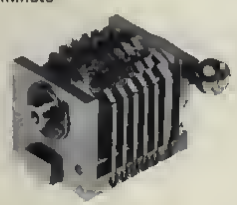
- A simplified inking system with an eccentric center roller in the ink well provides quick alignment for the applicator sponge rubber roller. A doctor knife in the inkwell removes all surplus ink from the inking rollers
- There is a simple adjustment for dispensing the amount of ink required
- The unit has a small brush wheel to clean the numbering element after the numbar is applied
- A micro switch cuts the power when a roll of film is completed
- A Veedar Root counter checks the film footage
- A keeper holds the film in place for sync mark and spot coding
- The handle in front permits the operator to manually turn the numbering block to the desired position for a number change
- Running speed is between 80 to 110 feat per minute



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- Tha numbaring block generally consists of two latter whaels or one number and one lettar wheel manuelly operated and four number wheels which move autometically and number from 0001 to 9999. All numbers can be reset by hend to begin at any desired number.
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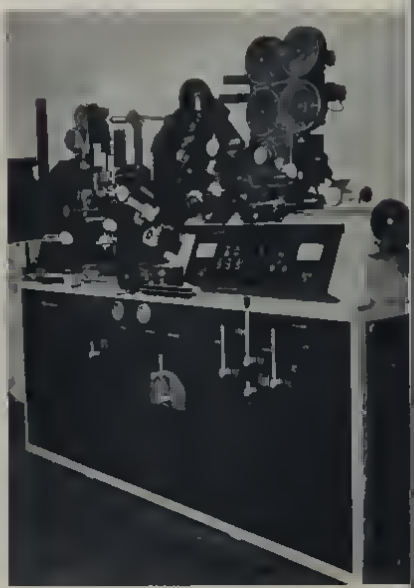
EXAMPLES OF two of many optical effects possible with new optical bench designed by Eastern Effects, Inc. At left is example of revolving effect, used increasingly for emphasizing text in TV commercials. At right is typical zoom effect produced on bench from camera negative. These and other optical effects are enhancing the industry's top TV commercials.

OPTICAL EFFECTS are to the motion picture producer what periods, commas, semi-colons, and paragraphs are to the man who writes. Just as it would be difficult for a writer to turn out a story without punctuation, it would be rather difficult to produce a complete motion picture without opticals.

In the early days of opticals, the simplest effects were used similar to punctuation marks: a fade-out terminated a sequence or the picture itself; a dissolve indicated a change of time or place; a wipe introduced a new idea, etc.

All these basic optical effects are still used today. Their meanings have not changed. However, in the business of making TV commercials, the demand on the ingenuity of the optical effects man is enormous. The reason for this, of course, is reflected in the very nature of the TV commercial itself.

Any motion picture at best is an idea. The best motion pictures are those which express an idea most interestingly and clearly. A television commercial is a sales message on motion picture film and comprises essentially one central idea. The time alloted the sales message to make its point is invariably very short. Hence, the utmost ingenuity must go into all phases of producing the commercial. No longer is it enough to put in filmic commas and periods and change of pace; it now becomes necessary to associate one or more ideas within the one se-



TO GAIN THE quality and speed required in production of TV commercials today, Eastern Effects designed and built this optical bench

And Commercials

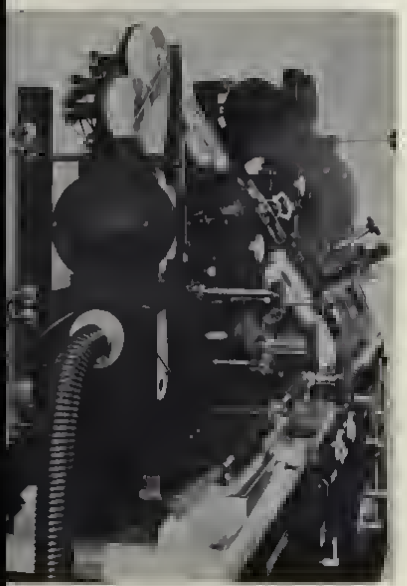
By MAURICE LEVY
President, Eastern Effects, Inc., N Y , N.Y.

quence It is necessary to "marry" elements that might, at first sight, appear to be strange bedfellows.

The art of matte-making, Rotoscoping, and other optical zib-zab is rapidly developing into a highly intricate science, due largely to the demands put upon the industry by television commercial production. The field of optical effects is still relatively young; new techniques are being developed daily, but there is yet a long way to go.

Because the optical bench is the key

Continued on Page 377



CLOSEUP VIEW of the finely-engineered apparatus which is capable of producing an infinite variety of optical effects on motion picture film.

NICE WORK when you get it—shooting in Hawaii. Cameramen for Cole & McGlone, Hollywood business film producers, shoot scene at Honolulu airport in 16mm color for a United Airlines' travel promotion film

One-Man Film Producer

. . . is it the business for you?

By DEE STAFFORD

LIKE TO BE A PRODUCER of business films? Wondering if you should hang out your shingle and take a fling at this fascinating craft? What are your chances of success? Can you get your idea off the ground?

Today, in the U S., there are some 3,000 one-man film-producing companies. While many of these are in-plant units, with the producer on a company payroll, free from financial and business problems—no small number are entrepreneurs who have ventured into business for themselves.

What are the ingredients of success for those who are making the grade? What are the pitfalls that spell failure for those who fall by the wayside?

Film laboratories are in a unique position to monitor the success or failure of 16mm film producers When they fail the laboratories are often confronted with the unfortunate fact of unpaid bills. Indeed, the rate of risk among newly-established film makers has proved quite great for many film labs. On the other hand, when a film producer succeeds, the laboratory gains a new long-term customer whose growth may often prove quite astonishing.

Having observed both the dismal failures and glowing successes among independent makers of fact films, the writer, who is the owner-operator of a laboratory serving many producers scattered about the nation, has compiled a revealing "case book" that may help you decide whether you should leap into the arena.

The aspiring film producer may evaluate his chances for success by answering the Quiz which appears on page 376. If you answer "yes" to every question, then your chances for success are good If you answer in the affirmative to only half the questions, you are probably a borderline

Continued on Page 374

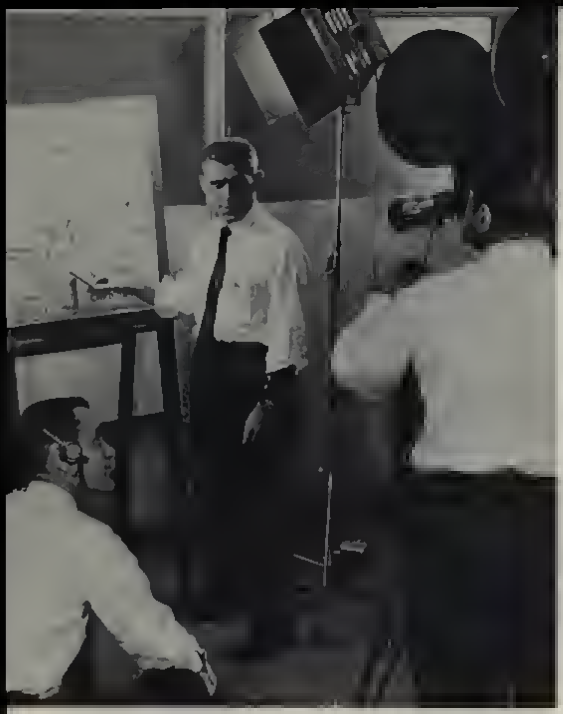


FIG 1—IBM Poughkeepsie's Technicol Film Unit records an engineer's report, using an Auricon 16mm single system sound camera equipped with Pan Cinor zoom lens. Engineer's words are picked up by small mike suspended on neck cord.

Single-System Film Production

How IBM's Technicol Film Unit solved single-system's inherent editing problem in order to utilize this time-saving sound motion picture method for its progress report films.

By JOSEPH BOHMER*

FOR THE PRODUCTION of certain types of 16mm sound films, double-system is quite a time-consuming and costly process, as compared with single-system. The general double-system practice for 16mm is to shoot the picture on reversal film and record the sound on magnetic tape or film, subsequently combining results of the two to produce the release print.

Before the production reaches the release print stage, a number of steps are involved. A workprint—usually a one-light reversal print—is made. The magnetic sound track is re-recorded to optical and a positive track made for editing purposes. After editing the picture and track, the picture original and the sound negative must be matched to the edited picture and sound. Then a duplicate negative must be made of the picture. After all these steps have been completed, the release print is made. This procedure, however, proved too time-consuming for the technical film program at IBM, Poughkeepsie, and this led to considering, and finally utilizing single-system sound film production as a means of cutting production time.

By comparison, single-system poses one major problem—that of editing—because the sound track and picture are recorded simultaneously on one strip of film, but 26 frames apart. (The corresponding sound for any given frame is 26 frames ahead of the picture.)

One of the drawbacks this creates is an awkward time-lapse in the opening scene of a picture before the sound is heard. Also, at the end, the picture must continue for 26 frames so that its corresponding sound may be reproduced. This sometimes means extending the running time of the last scene beyond its logical ending.

IBM's Approach to Single-system

The IBM Technical Film Program was developed for the purpose of keeping engineers informed on the many projects in progress throughout the company. Our film production facility gives the engineer opportunity to report graphically on his project and its status to management and fellow engineers at IBM laboratories throughout the world. Be-

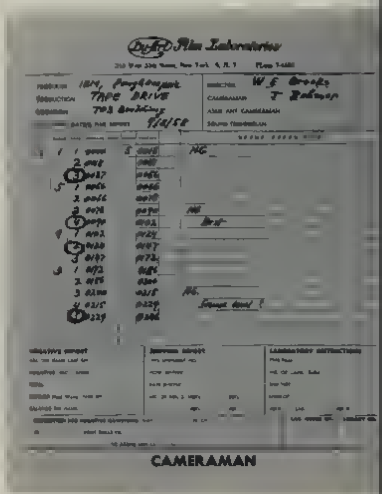


FIG 2—Production sheet which is used to record footage and other data on each take as guide for film laboratory, and later for editing.

*IBM Product Development Laboratory, Data Systems Division, Poughkeepsie, New York.

cause such films are essentially progress reports, their production time must be kept to a minimum to preserve their timliness.

Before a trial single-system production was undertaken, a way had to be found to overcome the problem of time lapse. The ultimate solution was found in having action take place before the sound starts and after it ends. For example, in opening scenes we have the engineer who is to appear in the scene walk into the picture, turn towards the camera, or look up from his subject—a machine, model or drawing—before starting to speak. An alternative is to start with a closeup of the subject, then zoom out to include the already-speaking engineer (Fig. 3). In transitions from one scene to another, the troublesome time-lapse is overcome by having the engineer turn toward the easel, machine or model before him and start the next scene with a closeup of the model, as shown in Fig. 4. Still another alternative was found in "breaking" sentences. For example, a shot begins with the engineer standing next to an oscilloscope and talking. As he speaks, the camera is panned to a closeup of the oscilloscope screen (Fig. 5). The engineer states: " . . . *we see the changes in the oscilloscope traces, which indicate* . ". By breaking the sentence at "traces" during the long shot and having the engineer start the closeup scene and continue the sentence: ". . *which indicate* . . . ", a perfect transition is achieved. The word "*traces*" will, after editing, be already heard over the closeup showing the traces, and the explanation continues without pause.

The trial production was so successful that single-system was adopted for our technical film program. The use of reversal film was rejected in favor of negative film, thus saving time and expense that otherwise would be required for duplicate negatives and sound recording, as shall be explained further in the description of production methods that follows.

Equipment

Our camera is an Auricon Super-1200 16mm equipped for variable-density sound recording, plus a Pan Cinor zoom lens having two supplementary lenses for closeup photography at three and six feet. Lighting equipment is nominal, consisting of two Senior ColorTran lights plus a number of spotlamps on alligator clamps. The microphone is an RCA Lapel, 6K6B.

Film and Developing

Dupont 931-A film is used and developed to a negative. This eliminates the need for making a duplicate negative of the picture or for re-recording the sound track. As the number of prints normally required does not exceed 15 to 20, the original negative is sufficient for such print production, and the release print quality is definitely better than would be obtainable from duplicate negatives. Exposure time for picture and sound is constantly checked with the laboratory and changed as required. Dupont recommends an exposure index of 125 ASA for negative developing of 931-A stock. At this time 100 ASA is used for the picture exposure, and a setting of 12 on the Auricon amplifier for sound exposure time.

Script

One of the most important factors in adapting single-system to our needs was good scripting. For technical report films, a script writer should have a degree in engineering in addition to practical experience in script writing. His first step is to interview the engineer whose report or project is to be filmed. To condense the average subject to a presentation time of not more than 2½ to 3 minutes requires special skill. Additionally, the script writer must be familiar with the single-system problems of editing so that he can properly prepare the required openings, transitions, etc.

And just as it is important that the script writer work closely with the engineer in the preparation of the script, so,

Continued on Page 376

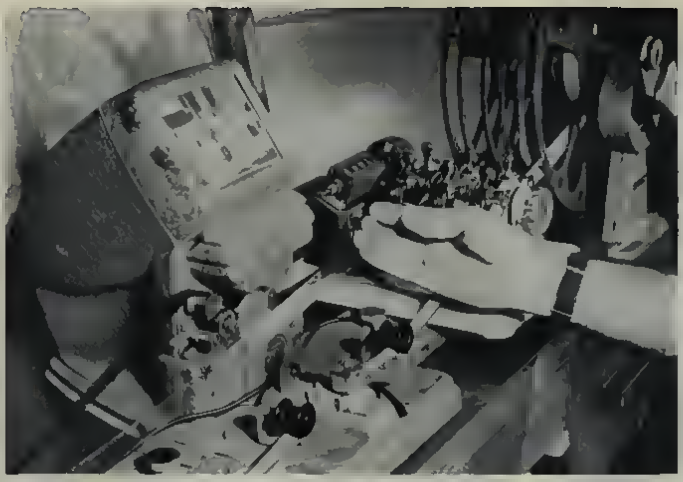
16MM FILM CLIPS below illustrate some of the techniques that are employed in shooting IBM progress report films in order to circumvent the problem of editing combined picture-and-sound-track films of the single-system method. Film clips are slightly enlarged to show detail, are described in text.

FIG 3

FIG 4

FIG 5

FIG 6



AUTHOR'S DOUBLE-SYSTEM editing set up, which includes 3-channel synchronizer with footage counter, film viewer, plus home-made sound reader (arrow, lower center of photo). Strip of clear film is timing medium

A Synchronous Quarter-inch Tape System For Film Sound Recording

(CONCLUSION)

By GILBERT M. GALLOWAY

Leonard Theological College, Jabalpur, M. P., India

THIS THIRD AND concluding article in the series begun in the February issue deals with the procedures involved in copying or re-recording original quarter-inch tape sound tracks to optical tracks, following the author's particular method of recording as set forth in the preceding chapters.

In the last article, which appeared in the April issue, we explained how an integrated sync control signal plays a vital role in re-recording with the author's own magnetic tape recording set-up. The article concluded with a description of how a finished, mixed sound track was produced on quarter-inch tape which also includes the sync control that synchronizes the track with the picture film.

In our next step—re-recording to optical track—the tape can be copied directly to optical track, or it can be re-recorded to 16mm sprocketed magnetic film with appropriate equipment, and thence to optical. This latter intermediate step is mentioned because it probably would be more convenient to bring the 16mm film recorder into the tape recording studio than to transport bulkier optical recording equipment.

Another possibility is to copy onto a Rangertone tape. This procedure has already been outlined. Any of these copying steps, of course, must employ a machine with synchronous drive so that the method previously outlined, of comparing the tape sync signal with the power line frequency via the oscilloscope, will insure synchronization with the 16mm film recorder making the intermediate transfer recording.

Manual synchronization with the power line frequency, using the oscilloscope, is one of the reasons for the earlier reference to a need for a control signal that is evenly divisible into the powerline frequency.

An alternative synchronizing system can be used at this point. The control track can be amplified so as to operate a neon glow lamp directed onto a strobe disc mounted on the shaft of a small synchronous motor. This arrangement would allow synchronization of the tape with the line frequency and can be used in place of an oscilloscope, especially where size and portability of the system might be a determining factor.

If the release print of the film is to be magnastriped for magnetic sound track instead of utilizing an optical track, then the final recording of the track can be done without the use of any professional magnetic or optical machine. The method outlined in the first section of this article may be used for copying the mixed tape track onto a magnastriped print of the picture film.

By use of the 8-frame sprocket wheel attachment, as explained in the initial article, the Author is able to start with a control track of either 24 or 25 cps. and then prepare the tape by the half track method outlined in the chapter on re-recording (April) for synchronization to either a 50-cycle line or a 60-cycle line, thus providing complete flexibility of the system at this point.

Lip Sync Problems

It is possible to use the equipment and procedures described thus far to record lip-sync sound for a picture. Here certain pointers must be observed.

First, for direct recording, a signal that synchronizes with the camera speed must be integrated with the dialogue track as it is being recorded. Here a sync motor must be used to drive the camera. From this motor or from a separate sync motor or from a special electronic circuit, a low frequency control signal can be obtained which is automatically synchronized with the film. In India the Author uses the following method: A sync motor drives the camera. A 50-cycle sync signal directly from the power line is recorded onto one half of the tape by the "extra head" method. The head is mounted on the Ferrograph half track tape recorder in such a way that the dialogue is recorded on one-half of the tape and the 50-cycle signal recorded on the other half. Later, the good

sound takes are re-recorded, further equalized and a synchronous 25-cycle sync signal mixed in the re-recorded track. To do this the Ferrograph and Ekotape recorders are used together in the same manner as described in the chapter on re-recording, with the speed of the Ekotape varied to sync with the 25-cycle signal.

For playback filming of songs, etc., the material can be recorded with the control signal mixed in at the time of recording. During filming, the tape is manually synchronized (by means of the oscilloscope) with the line frequency driving the camera.

For post-recording similar techniques can be used. If the picture is projected in a post-recording session, the control signal is mixed with the post-recorded dialogue and manually synchronized with the picture (again by means of an oscilloscope).

An interesting automatic method can also be used for post-recording by obtaining a suitable signal from the projector through any of the means previously described, and recording it on tape by the extra-head method described earlier for lip-sync work. Then the good takes of this post-recording work are re-recorded with a synchronized low-frequency note integrated into the track in the same way that the lip-sync recording was done. ■

MITCHELL REFLEX CAMERA

Continued From Page 360

flex viewing of scene or image during shooting. It consists of a highly polished steel disc having an aluminized reflecting surface, and operates at an angle of 45° to the film plane to provide a bright, undistorted and almost flickerless image. Purpose of the secondary or variable-disc shutter is the same as in the larger Mitchell cameras —to control exposure and permit fading-in and fading-out during shooting. This shutter is directly behind the reflex shutter and may be opened or closed manually while the camera is operating, either forward or in reverse. Maximum opening of shutter is 180° and may be varied in increments of 5° down to zero. At 24 frames per second, the shutter — operating wide open—provides an exposure of 1/48th second.

The ground glass in the reflex viewing system is purposely made larger

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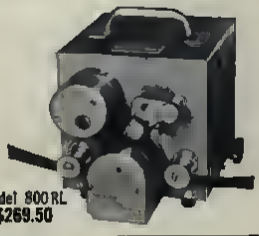

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than the full aperture area of the camera, thus affording the cameraman a view of what lies outside the framed area. Because there are no louvres in the system, and because filters, when used, do not intrude in the reflex viewing (the filter slot is in the aperture) the reflex image is bright and clear at all times.

Provision is made in the finder tube to vary the magnification for critical focusing. Also provided are a light trap to prevent light reaching the film through the reflex finder when not in use, two viewing filters (one for color and one for monochrome films), and an adjustable eyepiece. The ground glass is readily interchangeable and can be supplied inscribed for any aspect ratio.

The camera also provides for using the standard Mitchell finder, or a tracking or sport type finder — desirable when making tricky follow shots where the camera can be more easily panned by the operator looking "at" the finder than "through" it. Soon to be announced is an efficient follow-focus attachment for the camera.

A radical departure in camera design is the camera's 400-ft double compartment magazine. As may be seen in accompanying photo, it is mounted on an angle beneath the camera so that curvature of the housing provides a convenient rest for the camera on the operator's shoulder. With the magazine thus removed from top of the camera, the resulting low silhouette facilitates use of camera in extremely tight quarters, as when shooting from an automobile, small plane, test chambers and similar theatrical or industrial setups. The magazine will also accommodate 100-ft. and 400-ft. daylight spools or 200-ft and 400-ft. lab. film loads.

Pointing up the new camera's adaptability to full scale production shooting on the sound stage or on location is the provision for use of larger film magazines. Standard Mitchell 400-, 1,000-, and 2000-ft. magazines may also be mounted in the conventional top-of-the-camera position through use of a special adapter, and employ the regular Mitchell take-up belt. The takeup of the inverted 400-ft. magazine, on the other hand, is powered through a gear engagement with the camera mechanism itself

Bausch & Lomb designed a series of Super Baltar lenses especially for the Mitchell Reflex Camera — a matched set of T/2.3 lenses ranging from 20mm to 9-inches in focal length. Each lens is complete with sunshade, filter-retaining ring, follow-focus gear, click stops and built-in depth of field scale, and is optically centered to the full aperture. (A turret that will center the lenses for Academy aperture can be supplied on special order.) Lens mounts are bayonet type, helical focusing, non-rotating, and calibrated to 18 inches (except the 25mm, which is calibrated to 6 inches).

The camera movement is an integral unit that may be easily removed for inspection or cleaning and re-inserted without loss of timing. It is designed to operate at speeds ranging from single frame to 120 frames per second.

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The removable aperture plate provides for full standard aperture of .980" x .735". Dual registration pins and dual pull-down claws assure perfect registration operating forward or in reverse. Also provided is a filter slot that takes gelatin filters in one or two thicknesses. The spring-loaded pressure plate is also readily removable for inspection.

The Standard, NC and BNC Mitchells employ a unique system of matting that has proved quite valuable down through the years: a matte cutter punches out a frame of processed film which is then inserted in a matte slot located in the focusing finder. In this way matched dissolves and other combination shots can be lined up with the camera in racked-over position, and then photographed with the knowledge that both shots are positioned correctly.

This matting system is carried over in the R-35's design with the additional advantage that the processed matte film may be observed while the scene is *actually being photographed*, because it is positioned in front of the ground glass. Superimposed titles, split-screen shots and matched dissolves or double-exposures can thus be easily and quickly made with accuracy.

Variable (wild), synchronous (sound), high-speed and animation motors in various voltages from 12 to 220 eventually will be available to suit both studio and location power requirements. Each motor will be so mounted as to be readily interchangeable by unscrewing four thumbscrews. Threading knobs, for turning the camera over by hand, are provided on the shaft end of each motor and also on the side of the camera near the right forward handgrip.

The R-35 has a built-in footage and frame counter, also a tachometer. A unique "building block" matte box enables the cameraman to use only the filter and effects holders he needs for the shot. This system contributes to ease of operation and eliminates unnecessary bulk. Three-inch square filters and Pola Screens can be accommodated, plus mattes and diffusers. In all, the camera provides for use of filters in three different places: aperture plate, before the lens in the special filter rings provided, and in the matte box.

The basic R-35 camera consists of the following components: camera housing with variable speed motor, one 400-ft. inverted magazine, set of three T/2.3 Bausch & Lomb Super Baltar lenses in the following focal lengths: 25mm, 50mm and 75mm, and carrying case.

As we go to press, we are advised that one of the television networks reportedly has ordered six of the Mitchell R-35 reflex cameras for use by its news cameramen in covering the forthcoming Democratic National Convention in Los Angeles.

Tentative list price of the camera, including three lenses, 12-volt motor, one magazine, and case is $5990.00. ■

PLUS-X AT 1000 ASA

Continued From Page 356

sations made it possible to develop Plus-X satisfactorily on the basis of the high ASA index at which it was shot. Comparison tests revealed that Plus-X exposed at 1000 ASA compared favorably with Tri-X developed normally.

It is important to point out that, when boosted above 600 ASA, Plus-X requires more careful exposure by the cameraman. The latter's discretion in selecting the best camera angle with

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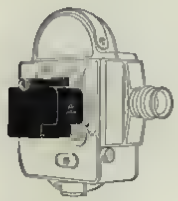

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respect to the existing light source (which is often in the scene being photographed) and the careful balancing of light and dark areas throughout the frame is of prime importance.

No less important is the use of a good exposure meter in determining the lens stop to use. The Weston and Fotometer, which I use, are sufficiently sensitive for reading low-level light for this type of photography. On the basis of 1000 ASA, I exposed Plus-X at 24 frames per second at f/2.0 in the majority of instances. Where light levels dropped below two foot candles, it was necessary to open up to f/1.4 or undercrank a little—circumstances permitting.

A problem cropped up when both exterior and interior shooting had to be done without a chance to change the film in the camera. The advantages of the variable shutter or use of a neutral density filter could not provide a suitable compromise. Examining the situation further it was found that, in one of the buildings the troupe would visit, the flourescent lighting yielded illumination that would enable shooting at f/2.4 at 24 fps on the basis of an ASA index of 300. This figure proved not too high for exterior photography and it was on this basis that both the interiors and the exteriors of the sequence were photographed. When this phase of shooting had been completed, and we could reload, we went back to the basis of 1000 ASA to complete the photography of the much darker interiors.

An exception to the foregoing procedures was followed when photographing the Symphony orchestra. The musicians wore black dress suits, as did most of the male guests in the audience. It was not possible to bring in equipment to properly light the museum hall nor the orchestra because of the nature of the charity affair for which it played. However, we did obtain permission to bounce the light from four No. 4 photoflood lamps onto the ceiling, some thirty feet in height, as long as we kept the equipment out of the way of the guests. This provided just enough illumination to lighten shadow detail in the black dress suits.

On still another occasion, I made an interesting discovery. When shooting night exteriors in black-and-white on the basis of 1000 ASA, neon lights appear blurred due to the extreme overexposure they receive when exposure is set to favor street details. To get street details right, I found that an opening of f/8.0 produced good results. When faced with a problem of this kind, it is essential to know the extremes one may encounter. For this reason it is advantageous to visit the location in advance of shooting and with an exposure meter take a number of readings on which to base your working exposure. The choice of ASA index can then be made with safety—keeping in mind, of course, that it is better to work at the lowest index figure possible; also the variations that may have to be encountered with the same roll of film.

One very important rule that I have followed is not to read the meter on a light source unless it is the main subject. Here it is advisable to shade the meter from the existing light source, and if the reading is too low (or the light too weak to register on the meter), try the substitution method—take a reading off one's hand held in a suitably-lit place.

Incident light meters, I find, are not very practical for this kind of shooting, since contrasts are often great. The method of reading the darkest and brightest areas or subjects in a scene and then averaging the reading is a helpful one, provided illumination sources are not included in the "bright area" readings.

The two filming assignments described above were for the International Service of CBC-TV, and the results were subsequently shown on the national television networks in the countries of the respective visiting artists. ■

ONE-MAN FILM PRODUCER

Continued From Page 367

case who might well succeed by sheer will power and determination. If the majority of your answers fall in the "No" column, then it is extremely unlikely that you can succeed as a one-man producer in business for yourself. Of course, there are exceptions to every rule, and America's free enterprise system produces surprising unconformities all the time. But case histories compiled over a six-year period among typical small producers indicate to me that the twelve questions in the Quiz provide a good rule-of-thumb for the aspirant's potential as a successful commercial film producer.

Most of the 16mm film producers whose efforts have been crowned with

success invariably have had a good background in advertising, art, journalism, the broadcast or television media—always a foundation in photography. They have essentially been "idea men" who knew how to sell their services to potential customers.

They had the ABC's of success: A—ability, B—background, C—capacity. In addition to possessing the artistic elements so vital to success in a creative field, they evidenced an innate, almost instinctive business ability without which the most gifted person cannot succeed in today's commercial environment.

A number of the more durable producers had already tried their wings at business. Being in business for oneself can look most attractive to many persons—until they try it. Then they discover themselves temperamentally unsuited for the rigors of survival in commercial life. That is why those producers with a previous record of success in some other business have ranked high among the prosperous members of the profession.

It seems strange that only a few of the bold, enterprising producers represented in this survey came from the ranks of film making. Most technicians or crafters who find a berth in the established industry prefer to move up the ladder in large companies (and one can hardly blame them) while the more adventurous step in where angels fear to tread—"Johnny-come-latelies" willing to take large risks in a business fairly bristling with hazards.

Occasionally, unorthodox procedures unheard of among workers trained in conventional methods have made it possible for some of the little operators to perform economically and turn a profit right from the beginning. They adopted lightweight equipment, innovated in production techniques, streamlined investments and operating costs, and made it "over the hump" to everyone's surprise—including, sometimes, their own.

But, getting back to you: If you are married, your wife is deeply involved in your decision to embark on a business of your own. And if you have to sell her on such an idea by painting a rosy picture of rich rewards, think twice! Few new businesses produce handsome returns the first few years, while many deliver only a marginal profit for the first five years or more. The cost of success may be stark austerity, or at least the willingness to forego luxuries that otherwise are enjoyed by others working for wages.

Above all, look at your proposal on paper. Outline it thoroughly and carefully so that you can analyze what you are really undertaking. How much will it cost you? How great will be your contract commitments for equipment? What will be your operating overhead? How far will your cash reserves carry you?

Then, make certain you have surveyed your market. Will the radius in which you plan to operate support your new business? One way of trying to determine this is to make calls on the potential users of your proposed service. Find out if they can and will budget money for films if there appears to be no need for your services in your area, you are doomed. Thousands of businessmen fail annually because they unwisely set up shop when and where they were not needed.

If all factors, following your analysis, appear in your favor, sit down with a banker and present yourself as a new businessman. Banks thrive on the development of new local business, and they want every budding enterprise to succeed. If you can convince your banker that you are destined for success, his simple encourage-

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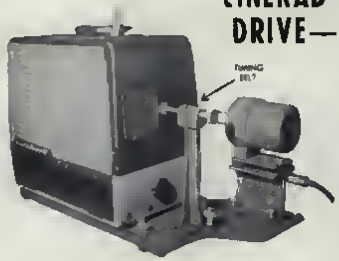

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ment will be a real factor in reaching attainment of your goals. His attitude may be wait-and-see when it comes to extending substantial economic aid in the form of credit, but if your early history is favorable and your business practices are wholesome, your banker will probably surprise you with valuable and tangible support, for you will be a promising new customer for the bank.

Finally, don't apologize for being small. Smallness sometimes is an asset. Trade on it. Dollar-conscious industries may even prefer to do business with you because you *are* small and your overhead is low. Unless you are generously capitalized by some fortunate family connection or personal assets, you will probably begin operations in a modest way. So be it. Don't try to emulate the big producer in his ivory tower, because in the beginning, you'll probably need every nickel you can muster just to maintain operations and the less cash you have tied up in the form of a "facade" or "front", the more liquid capital you will have available. The lower your overhead, the more bank credit you will be able to negotiate. Banks, least of all, will be impressed with a glittering foyer or a lavish conference room. And your suppliers, such as the labs which will be required to extend you credit, will be more amenable to occasional unavoidable delays in payment if you avoid excessive efforts to impress the public. Almost every successful business started small, but thousands began with a splash and then went down the drain with a gurgle.

Once you hang that shingle, you'll have to "sweat it out." You'll have a big and endless selling job ahead. But, if you deliver what you promise—plus a little more—your reputation will grow. And from the fund of goodwill you build up, repeat customers and their recommendations to others may well provide you a handsome living for many years to come. At least, that's what has happened to others. And it could happen to you.

SINGLE-SYSTEM PRODUCTION

Continued From Page 369

too, is it important that he collaborate with the cameraman both before and after the script is written. When each technical detail is discussed and all opening scenes, transitions, etc., are carefully worked out before shooting starts, a satisfactory, easy-to-edit film report invariably results.

Filming

In most cases filming takes place in the actual work area. Because this activity must in no way disturb normal operations in adjacent areas, equipment and film production personnel are kept to a minimum. The script writer is responsible for directing and the control of the sound level, the cameraman for the pictorial presentation. As mentioned before, the latter is active in the preparation of opening scenes and transitions during the script writing stage and must be as familiar with the script as the script writer and the engineer. During filming the cameraman shares in the directing, paying special attention to transitions. Occasionally he may discover a "smoother" transition than planned. Thus, there must be ample flexibility in the script to permit on-the-spot changes. This, together with a carefully prepared script, helps avoid a stereotyped quality of presentation.

In single-system sound recording, use of clapboards is unnecessary because picture and sound are automatically in synchronization. The start of each scene is indicated automatically by the over-exposed first frame. The exact footage of each take is carefully registered on the production sheet to expedite locating scenes during editing (Fig. 2). The actual filming of a take begins when the cameraman calls "count five" as he starts the camera. The engineer—who is to narrate the report about his project—then counts five to himself before he starts to demonstrate. Thus the camera is on proper speed and at the same time any psychological tension is eased, assuring a smooth start.

Optical effects are limited to fade-outs and fade-ins. Dissolves cannot be expected, because backwinding film in the Auricon camera is not possible; also, since negative film is used, dissolves cannot be made in the printing process. Sliding a black cardboard in front of the lens at the end of a scene and starting the next scene with the lens covered and sliding the cardboard off in the same direction produces a crude wipe, and supplies sufficient visual change from one scene to the next (Fig. 6) whenever transitions are necessary.

Editing

The first print is ordered as a timed print, which offers the advantage that the workprint is of the same quality as the release print. In the negative developing process, the edge numbers are clearly visible on the negative and on the print, which eliminates need for separate edge-numbering of the workprint.

During screening, the best takes are selected and circled on the report sheet. The scenes selected are then easily located by referring to the footage meter on the synchronizer. Selecting negative scenes for matching is also simplified by this method.

The disadvantage inherent in single-system—that the sound is 26 frames ahead of the picture and recorded simultaneously on the picture film—we

ARE YOU QUALIFIED?

A Quiz to aid aspiring independent 16mm film producers analyze their business potentials

Have you ever put together a complete 16mm film, including soundtrack?	___Yes ___No
Are you a writer with experience in radio or films?	___Yes ___No
Are you a creative, imaginative person with ideas?	___Yes ___No
Do you have a high degree of mechanical comprehension?	___Yes ___No
Are you a good salesman (enjoy meeting people)?	___Yes ___No
Have you been a successful businessman in some other field?	___Yes ___No
Do you have the physical stamina required to work long hours?	___Yes ___No
Are you efficient and able to perform tasks rapidly?	___Yes ___No
Is your credit good, and do you have the confidence of a bank which will assist you with commercial credit?	___Yes ___No
Are you sufficiently capitalized (that is, do you have enough cash in the form of savings to purchase your initial equipment or provide a safe operating reserve)?	___Yes ___No
Are you located in an area where competition is not severe? In other words, is there a need for your services where you are?	___Yes ___No
Do you really want to be a film producer more than anything else in the world?	___Yes ___No

reduce to a minimum by carefully planning all openings and transitions, using the various techniques described above.

Another difficulty which single-system presents — the "sensitometric disadvantages" whereby the picture and sound track cannot be given separate development — is minimized through close cooperation with the film laboratory. Exposure for the picture and that of the sound track are carefully adjusted to suit the film lab's developing procedures, so that satisfactory picture and sound quality results

This "sensitometric" problem could be eliminated and sound quality improved by employing an Auricon Filmagnetic recording unit in the camera in place of the optical sound recorder and using pre-striped raw stock for photography.

Because filmed progress reports, such as we produce at IBM, Poughkeepsie, must always be up-to-date, the considerable savings in production time which single-system affords is a major factor in this operation. During the past three years, we have produced twenty-seven 20-minute single-system 16mm sound films and 14 narrated films. Convincing proof, we believe, that single-system is ideally-suited to fast, low-cost production of 16mm technical films of this type ■

OPTICAL EFFECTS FOR TV FILMS AND COMMERCIALS

Continued From Page 367

tool in the production of effects for TV commercials, Eastern Effects, Inc., recently designed and built its own. This OB unit not only has the desired flexibility, but incorporates many innovations designed especially to afford the quality and speed necessary to meet present-day requirements of TV commercial production.

Let's dwell for a moment on some of the advantages this equipment affords. A frequent problem in the production of TV commercials arises when some particular "live" scene is to be reduced and matted into a TV set where the picture area in the set is so small that a preliminary fine-grain must be made with a reduction built in, and the insert picture zoomed out of the TV set to a 1-to-1. This invariably results in considerable quality loss in reproduction.

With our new Optical Effects bench, this preliminary procedure is eliminated since there is built into the mechanics of the machine a 20-diameter movement either side of 1-to-1. This permits reducing or enlarging a film frame or any part thereof up to 20 times. The range of reduction or blow-up is automatically controlled for sharpness and picture density. (See illustration).

The great advantage afforded is the vast improvement in picture quality and sharpness—result of a first generation print. Also, there is the added advantage of faster delivery, since there is no need for the preliminary development of reduction fine-grains or pre-opticals. A job can be shot in a matter of minutes instead of hours.

The bench, which is pictured in the illustrations on pages 366-367, actually is a combination 1-to-1 optical printer and an aerial image projector. The head of the latter unit, operating independently of the first projection head, affords a 2-diameter reduction or blow-up—both automatic. Further flexibility inherent in this equipment is its ability to zoom in or out on two images of different size, starting from the same point on both and ending at the same point without need for second-generation material, and in perfect registration throughout.

For example: The reduction of a face into a mirror, then optically zooming through the mirror to a full frame of the face only. Heretofore, two such movements requiring zooming at the same speed could not be accomplished without making a reduced fine-grain, then doing the same zoom on both films. When the face fills the frame, it is necessary to achieve blow-up quality. With the aerial image method, when back to 1-to-1, we achieve original quality from a 1-to-1 fine-grain in perfect movement.

Another "first" is the ability of this optical bench to spin a live scene or title without using prisms. (See example reproduced on page 366). To achieve this, the first projection head actually rotates on a 360° axis centered on the Academy aperture. The set-up also permits any angle of tilt while running live action footage. In addition to the spin feature of the front projection head, the bench also affords a tilt of the taking camera of 20°—also centered on the Academy aperture.

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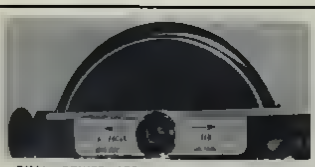

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Thus, two different elements in the image set-up can be altered or corrected without the need for making a second-generation film

Contributing to uniformity of field is the unique light source which requires no adjustment of either bulb or reflector Also, with the aerial image unit, a CinemaScope normal or squeeze image may be reduced or enlarged — something not heretofore possible with a standard optical bench.

An arrangement of solenoids and clutches permits any combination of skip-frame printing; each head and camera acts independently, in a combination of two projection heads together, or with either one of the projection heads and camera together—all operating in sync. It is possible to simultaneously run six films, plus two films in optical matte position through this equipment

To summarize the advantages: opticals can be completed in record time Effects are smoother, clearer, crisper, and of better overall quality. And finally, one's scope of creativity is enhanced because storyboards become more flexible; effects once considered impractical or too costly to produce are now simple to execute. ■

TRACKING MUSIC FOR TV FILMS

Continued From Page 364

the extra take with crisp cut-offs or accelerandos. An alert music editor on a recording session will get more than the composer bargained for. Almost every piece of underscore should be written with two or more endings. The variations are numberless. The quick cut-off, the rip-up, the smear, the crescendo and decrescendo, the long hold to quick gag, and the sfz, just to mention a few.

A variety of endings to a given piece of music is the start of a flexible library, but there's more than meets the ear. The transitions from one mood to another within a single piece of music is a major point of flexibility. Transitions from an "under dialogue dramatic" subtlety changes to a humorous passage and then builds to some menace or to an establishing shot, say, of a hospital. Television reaches for the unexpected and the transition to the unexpected, without tipping its hand, sometimes becomes a real problem. A few composers have found a way to write for the unexpected in such a way that the same music will fit many different kinds of scenes. The music retains a melodic interest that will play under a dramatic dialogue scene, a sneaky mysterious scene, or a busted romance scene. This music is an editor's dream. The trouble is that only a very few pieces of this type of music exist in his library, so it is used too often. In this situation the editor should keep trying for another dream cue. Even the bad dreams will be useful. Basic cues should be at least one-minute long and only rarely should exceed two and one-half minutes. One and one-half minute to two minute basic cues are the most economical.

Let's follow the tracking operation through some of its routine: The supervising editor advises the music editor that a show is ready for music spotting. He calls the composer and sets up a projection date. Notes are taken. Some questionable sequences are checked with the producer. Then the editor goes to work. His music catalogue is his bible. Each cue is listed according to its dramatic—music—content. The first sequence needing music is analyzed and measured. The catalogue is referred to for likely cues, their numbers are noted, prints taken from their storage cans, and work is begun.

A cue is run through the Moviola and perhaps rejected, and so is another. A third one has possibilities, but a more dramatic beginning is needed. Another cue is played. This one might work at the beginning. Work is started at the top with picture. It looks good down through the closeup, but falls apart on the two-shot. We go back to our third cue, and, after a few tries, a satisfactory cut is made. Head and tail trims are saved for future use. We

MONSTERAMA MOVIES AND ME . . .

I like the big screen—
Both the wide and the tall of it
Too bad my poor eyeballs
Can't take in quite all of it

. . *Tom Congdon*

continue this procedure to the end of the sequence. Tracking goes pretty fast, if—that big IF—a uniform orchestration and style is designed by the composer, if all the music is recorded in the same studio and orchestral balance and equalization remain constant, and if the music is designed for tracking. Any music cut is a good cut if it fits the scene and doesn't offend the ear.

The composer should look in on the editor at frequent intervals. He should check the editor's work before it gets to the dubbing stage. If a sequence doesn't feel right it should be altered to the satisfaction of the composer. This statement may sound strange, but one should bear in mind that the editor plays these tracks over and over again, and there is a tendency for the editor to fall in love with his cuts. True, many composers fall in love with their compositions, but the editor's cuts are often an extension of the composer's ideas. The composer is responsible to the producer for the music in the show, therefore, he must have the final say; but objectively.

The editor should receive copies of all scripts as soon as they are off the mimeo machine. He should read them at once, checking for future needs, whether it be a song in a night club scene or a Chinatown wedding. The composer should then read any script that requires special material for the next scoring session. The composer should check with the producer at frequent intervals to make sure that a Chinatown wedding scene hasn't been changed to a Mulberry St. barbeque. Some shows in a TV series go far afield. The Orient, Pago Pago, or Berlin. Most of the music for these shows can be found in stock libraries and used to good advantage.

The key to a successful track library show is the close co-operation between the editor and the composer. Their combined efforts should make the producer happy. ■

FILMING "THE FUGITIVE KIND"

Continued From Page 355

ployed in filming it.

Properly done, there is tremendous power in black-and-white photography, and Kaufman now has become an expert in this medium. Since 1954, when he won an Oscar for the photography of "On The Waterfront," his work has been all black-and-white and the pictures mostly grim, seamy and downbeat: "Baby Doll," 1956; "Twelve Angry Men," 1957; "That Kind Of Woman," 1959, and now, "The Fugitive Kind."

The chief advantage in shooting a picture on location, Kaufman says, is the opportunity it affords to fully exploit the authentic character of the place. For "The Fugitive Kind," it was decided to shoot all the exteriors and some of the interiors in a sleepy little town a hundred miles up the Hudson river.

"To recreate the appearance and atmosphere of a little southern town in an upstate New York hamlet involved altering many of the business facades on the town's main street," Kaufman explained. "A consistent mood had to be established in relation to the location and the story itself. This involved the elimination of a great deal of non-essential elements and the placing of emphasis, pictorially, on the more essential. This was more easily done at night when, with lighting, we could point up important elements typical of the location.

"'The Fugitive Kind' is based on Tennessee Williams' stage play 'Orpheus Descending.' From the very beginning it was essential to inject a dour and foreboding atmosphere of impending doom, reminiscent of the remote but implicit legend of Orpheus descending into Hell. Thus Brando arrives in this small Southern town at night at the height of a rainstorm—a scene that was underscored by considerable lightning and thunder. But the lighting for this scene is not entirely logical: there is an additional allegoric element reminiscent of the myth which sets the visual style for the tragedy. The same lighting style was again employed later in the picture for scenes of Brando and Miss Woodward in the cemetery. But the duality of the logical and allegorical style of lighting is true to the basic substance of the picture. The fact that 'Two River County', of which the little town is a part, is less heroic than the mythical Hell, is beside the point."

Kaufman endeavored, whenever possible, to shoot day scenes that called for a heavy mood on dull, overcast days, sometimes adding artificial rain. In this way it was possible to point up the feeling of hopelessness implied by

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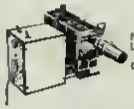

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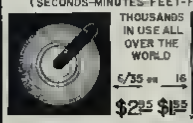

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the actors, and at the same time it helped the company maintain its production schedule. But a consequent problem for Kaufman was maintaining consistency throughout changing atmospheric conditions, once mood had been established.

The bulk of the action for this picture takes place in a two-story mercantile store. A great many sequences were shot here and Kaufman lighted each one in a different mood to point up the dramatic content of each.

"Technically speaking," he said, "the rigging of this set was a headache. A long, narrow, and high-ceilinged set, the overhead lights were useless because of their height. The solution was to run pipes at half-height along the walls, so they would look like practical water or gas pipes, then bang 'trombones' on them to take the set lights. This permitted more adequate lighting of the set as a whole and lifted restrictions on the action that would otherwise have prevailed."

It was on this set that Kaufman and his camera crew came up with one of the most unusual contrivances for filming a scene. When Miss Magnani learns her rascally husband has set fire to the place, she hurriedly runs up stairs and then back down in search of Brando. Director Lumet wanted the camera to follow Miss Magnani in her flight. To accomplish this, camera operator Saul Midwal was strapped in a chair mounted on a plank suspended on a trapeze, which enabled him to execute a vertical arc of almost 200 degrees while shooting the action with a 35mm Arriflex camera. The resulting scene is startling as it is unique. The execution of it is further explained in the series of photos on pages 354-355.

There is another interior in the picture which involved some imaginative camera handling to accomplish. This is the scene in Ruby Lightfoot's Juke Joint where Miss Woodward does an exhibition dance of sorts. The set was a low-ceilinged bar with dance floor and the usual clutter of tables and chairs, and a garish juke box which was virtually the main source of light. Director Lumet wanted to cover Miss Woodword's action as she moved

Continued on Page 382

AETNA'S MOTION PICTURE UNIT IN ACTION

THE PRODUCTION of highway safety films is a continuous project of Aetna Casualty and Surety Company's film unit, pictured above shooting a pastoral scene for "To See Ourselves." Behind the Auricon Pro-600 camera is chief photographer Arthur Garatti. Others from left are: Actor Rod Colbin, Warren Murray, writer and director of the film; and Richard Jackson, camera assistant. The "wild" shots for the picture were filmed with a Cine Kodak-Special. About 4800 feet of 16mm Ektachrome Commercial was exposed for the production.

In scene above, actor, portraying poet Robert Burns, is photographed for opening scene of film which is aimed at holding self-revealing mirror to actions and attitudes of today's automobile drivers.

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"THE FUGITIVE KIND"

Continued From Page 380

drunkenly around the joint in 360 degree pan. This prevented using lights on the floor and compelled Kaufman to light from the ceiling as best he could.

"I finally switched to Tri-X film and placed lights in a few side openings plus a single light on the camera which provided the required key light on Miss Woodward throughout the action," Kaufman explained.

Unusual lighting, often its uniqueness imperceptible, was the order of the day on most of this picture. The story's very theme demanded it, as Kaufman has already explained. One notable example is the scene where Miss Woodward induces Brando to go for a walk one night, a walk that takes them into a nearby cemetery.

"Here I used smoke, instead of rain, and lights intermittently sweeping the scene—logically motivated by the passing of cars on the highway nearby—but only as a pretext to evoke an eery feeling of the place," said Kaufman. "The smoke was used to break up the sweeping rays of light into multiple shafts that pierced the shadows between the trees and tombstones. Thus an aura of unearthly strangeness was visually created to enhance the author's purpose of having two people play a love scene in a place most unsuitable for it. And I think the lighting technique we employed here gave the scene an additional dimension."

It is refreshing in this day to encounter a cinematographer so articulate regarding his techniques and photographic philosophy. Kaufman undertook a difficult assignment in photographing "The Fugitive Kind," and he succeeded in giving the picture a luster that contributed much toward enhancing the performances of the various players in most difficult roles. ■

PHOTOGRAPHIC ASSIGNMENTS

Continued From Page 344

WESLEY ANDERSON, "The Alaskans"* with Roger Moore and Dorothy Provine

RALPH WOOLSEY, ASC, "Room For One More"* (Pilot)

GLEN MACWILLIAMS, ASC, Commercials*

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